Mohammed Omran

Milestones

In Career and Life

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I joined Etisalat in 1977 as graduate engineer and retired in 2012 as Chairman and CEO, an exciting 35-year career journey punctuated by challenges and tough times, hard work, and achievements.

This book is meant to serve as a profile of the most important milestones in my career journey rather than giving an exhaustive account of all the turns and details in this journey.

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بطاقة

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Preamble

A Turning Point

I was fortunate enough to witness and be part of one of the greatest revolutions of our time: telecommunications.
When I chose telecommunication engineering as my line of study, my objective, like any ambitious young man, was to build a successful and rewarding career.

It was indeed a privilege to be one of the first telecommunication engineers in my country, the UAE. That was a source of pride indeed, because it enabled me to serve my country wholeheartedly and contribute to its development, by sparing no effort to turn each and every project intosuccess. This is the motto of all Emiratis guided by our inspiring sheikhs rulers and Sheikhs.
I joined **Etisalat** in 1977 as graduate engineer and retired in 2012 as Chairman and CEO, an exciting 35-year career journey punctuated by challenges and tough times, hard work, and achievements.

On a personal level, it was a rich life experience that molded me into the person I am today. We, after all, are the total sum of our experiences.

Today, as I look back to my 35 years in **Etisalat**, I can clearly see the immense lessons I have learned from my superiors, my colleagues, and everyone I happened to work with. One of the most cherished values I

have learned from this long journey is modesty.

I found myself face to face with the mission of leading a company that has evolved into one of the world's leading businesses. That was a formidable task because I felt personally responsible for safeguarding a success story built by the collective effort of all those who worked for this company.

From my position, I had the chance, and the privilege, to help translate the vision of our leadership into action, and to be part of a great journey that at some junctures involved 'jawboning' the impossible. I am happy, beyond words, for having had the chance to serve my country and contribute in a humble way to our leadership's earnest endeavor to ensure a prosperous life for everyone.

And I just thought it might be worthwhile to record here the major milestones in my journey with **Etisalat**, particularly where they overlapped with the evolution of this vital sector in the UAE. I particularly felt the need for this retrospective narrative when I noticed that the young generations are not aware of some important details of this evolution. They are taking everything for granted simply because they were not present during the formative years. The purpose behind this was to lay the foundations of an ever-changing sector.

This book is meant to serve as a profile of the most important milestones in my career journey rather than giving an exhaustive account of all the turns and details in this journey. Needless to say, I have skipped many details, some of which might come out in another publication while the rest I will keep to myself.

I tried my best to concentrate on the positive, rather than the negative, aspects and to give an honest and transparent personal account of my 35 years with **Etisalat**. For maximum benefit for the reader, I included some technical information and provided definitions of some terms in both Arabic and English.

I am grateful to Allah for what has been an exceptional career journey, and for having enabled me to be part of the formative moments in the history of the UAE telecommunications sector, and to give a gist of this experience in this book.

Mohammed Omran

Chapter One

The First Steps in my Career Journey, And the Evolution of the UAE Telecommunications Sector

The Roots

I was born in 1953 in Al Jazirah Al Hamra, in the Emirate of Ras Al Khaimah, in the UAE. The life of the inhabitants of this region was strongly linked to the sea. Most of them were pearl divers and fishermen. Some were farmers, having farms in Khatt, Al Dagdaga, Al Hail, Al Fahlain and neighboring areas, while others were engaged in trade, including the pearl trade.

> "I was born in 1953 in Al Jazirah Al Hamra, in the Emirate of Ras Al Khaimah"

My ancestors hailed from the Shamsi tribe, a branch of the larger Naim tribe, who lived in different cities across the UAE, including Al Ain, Abu Dhabi, Dubai, Sharjah, Ras Al Khaimah, as well as in the Sultanate of Oman. Both my paternal and maternal uncles hailed from the Zaabis, a big tribe living in different parts of the UAE and the Sultanate of Oman. They are descendants of Bani Salim tribe, who had migrated out of the Arabian Peninsula to the Levant and North Africa as well.

> "The first modern school the Government of Ras Al Khaimah had built in Al Jazirah Al Hamra opened in 1959"

Fortunately, the first modern school the Government of Ras Al Khaimah had built in Al Jazirah Al Hamra

opened in 1959, in time for me to join the first grade. I continued in that school until 1967 when I finished my intermediate education.

Our teaching staff in the first two years comprised of two Emiratis: the late Sultan Bin Humaid Al Suwaidi, and Issa Al Nuaimi, may Allah bless him with a long life. Both were natives of Ras Al Khaimah. They were joined in the ensuing years by teachers from Jordan, Palestine, Egypt, and Syria.

I must mention here the great support rendered by the State of Kuwait, which built scores of schools in the northern Emirates in the 1950s and 1960s. It supplied the schools with all their books and educational aids and paid the salaries of the teachers. Even the intermediate and secondary school examinations used to be written in Kuwait and the answer papers were marked there too. Kuwait also helped in the construction and operation of hospitals and health centers in the Northern Emirates.

All those activities were managed through Kuwait's office in Dubai. That was an impressive hallmark in the history of the Gulf cooperation and Arab cooperation, that we should remember and share with succeeding generations. Also, it was Kuwait that built the UAE's first TV broadcasting station in Dubai, which was inaugurated on September 9, 1969 by the late Sheikh Rashid Bin Saeed Al Maktoum, Ruler of Dubai, along with Sheikh Sabah Al Ahmad Al Jabir, the then Minister of Foreign Affairs and the current Emir of Kuwait.

Egypt, for its part, sent a cohort of teachers at the expense of the Egyptian government. We still remember with Tremendous appreciation those great educators for their dedication and knowledge, and for their perseverance, despite the hardships of life at that period, with no electricity or tap water until the mid-1960s.

In 1971, I completed my high school education at Ras Al Khaimah

Secondary School in the science branch. As there were no universities in the UAE at that time, the Government sent students on scholarships to universities in Bagdad, Cairo, Beirut, as well as to Europe and the US.

The Kuwaiti Government was the sponsor of external scholarships during the 1960s. By the end of that decade, when the late Sheikh Zayed bin Sultan Al Nahyan took over as Ruler of Abu Dhabi but before the birth of the UAE Federation, Abu Dhabi Government took over as sponsor. My tuition fees, living expenses and tickets were paid by the Abu Dhabi Government until a federal Ministry of Education was established.

I opted to go to Egypt where I joined Cairo University's College of Engineering, which was one of the oldest colleges, established in 1816 during the era of Mohammad Ali, under the name of Muhandiskhana (Engineering House). I graduated five years later with

Cairo University

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a degree in electrical engineering, majoring in telecommunications and electronics (telecommunications was part of electronics at that time).
Having had a strong passion for mathematics since childhood, and later for physics, engineering was the natural choice for me. Within the engineering branches, I selected electronics and telecommunications at a time when no one could predict that telecommunication was set for a massive revolution and transformation. Thanks to Allah, that proved to be an apt choice as I became one of the first telecommunications engineers in my beloved country, the UAE.
I still cherish the memories of my college years. We were a group of Emirati students who used to get together after lectures. So, we approached our embassy for permission to establish a student club. I was chosen as a member of the founding committee that set up the internal regulations and organized elections for the Emirati students' club, which proved very useful in strengthening fraternity bonds and alleviating the feelings of living away from home.

I was pretty focused on my studies throughout my years in Cairo and,

Faculty of Engineering- Cairo University

thanks to my good command of English, I could understand the science texts without difficulty. According to the rules of the College, the medium of written communication was English but verbal communication was a combination of Arabic and English.

In 1977, I returned home with a BSc in electrical engineering, majoring in electronics and telecommunications. That year marked the beginning of my journey with telecommunications, and with **Emirtel-Etisalat**, which I joined as a freshly graduated engineer and retired from as Chairman 35 years later.

In 1977, I returned home with a BSc in electrical engineering, majoring in electronics and telecommunications

Launching Telecommunication Services in the UAE

The period that followed the creation of the UAE Federation in December 1971 saw major developments and an economic boom that sought to raise the standard of living and provide a prosperous life for both citizens and expatriates in the UAE. The provision of high quality and competitive telecommunication services was naturally a top priority.

Telecommunication services were first introduced to the UAE by foreign companies that operated independently in each emirate, in partnerships with local investors. The British Cable and Wireless (C&W) introduced the service in the 1950s in Dubai, as well as in Sharjah, Ajman, Umm Al Quwain, and Fujairah. Established in 1869, C&W was a world-renowned company and a sector leader. The same company served as operator of the telecommunication networks in several Arabian Gulf States, including Bahrain and Qatar, along with the UAE.

In Abu Dhabi, the telecommunications operator was International Air Radio Limited (IAL), in partnership with local investors. Ras Al Khaimah had its own company, Ras Al Khaimah Telecommunications Authority (RAKTA), a partnership between the Government of Ras Al Khaimah and C&W.

As part of its consolidation efforts after the birth of the Federation, the Federal Government decided to establish one central entity to serve all the emirates, instead of small companies in each emirate jointly owned

by local government entities and private local and foreign partners. In September 1976, the Emirates Telecommunications Corporation (**Emirtel**) was founded as the first nation-wide telecommunications company. All the emirates immediately joined **Emirtel**, except Ras Al Khaimah, which joined later, between 1980-1981.

Concurrently with the foundation of **Emirtel**, a government decree was issued regarding payment of compensation to shareholders of the smaller companies, while the two foreign firms that had been operating in the market were taken on board as shareholders in **Emirtel**. The new company was incorporated in September 1976, with a capital of AED100 million shared by C&W (20%), IAL (20%), and the UAE Government (60%). The two foreign firms took over management of the new company.
The management was predominantly British, aided by some Asian staff from India, Pakistan, and Sri Lanka. A small number of Emiratis and some Arabs assumed tasks that involved liaising with local and federal authorities and with local VIP customers.
Services were naturally concentrated in cities, given the high financial return and low cost of services.

"Telecommunication services were first introduced to the UAE by foreign companies that operated independently in each emirate, in partnerships with local investors"

"The Emirates Telecommunications Corporation (Emirtel) was founded as the first nation-wide telecommunications company"

The Beginnings at Emirtel

I joined **Emirtel** on November 3, 1977, roughly one year after its incorporation.

During my stay in Cairo, we used to receive copies of Al Ittihad newspaper through our embassy. In one issue, I saw a job advertisement for Emiratis at **Emirtel**. I thought it was a good chance; I met all the requirements and had always aspired to work in the telecommunications sector. As soon as I returned home, I submitted my application.

As I personally knew Ali Al Owais, the then Head of Telecommunication section at the Ministry of Communications and member of **Emirtel** Board of Directors, I went to him and presented my credentials. He took them and said: “We will come back to you. Wait for our response.”

They soon contacted me to tell me that my application had been accepted and that I had to meet the General Manager in Abu Dhabi. He was a British man named Jeff Downer.

He was a typical Englishman, with perfect English and a deep knowledge of the UAE regions and tribes. He asked me about my study and specialization. To tell the truth, I was a bit nervous because I was not used to communicating in English with a native speaker. It was my first job interview and I had no clue how to respond to some questions, particularly those about hobbies and out-of-work activities. Mr. Downer

asked in which emirate I would prefer to work. I chose Sharjah because it was the nearest to my home in Ras Al Khaimah.

> I joined Emirtel on November 3, 1977, roughly one year after its incorporation

Emirtel

At that time, **Emirtel** was composed of a Head Office in the capital Abu Dhabi, and branches in Abu Dhabi (covering Abu Dhabi city and surrounding areas, and the Western Region -Al Dhafra, Al Ain, Dubai, the west coast (with Sharjah as its base, and covering Sharjah, Ajman, and Umm Al Quwain), the east coast (with the city of Fujairah as its base, and covering all the areas of the eastern coast where some parts of Sharjah and Ras Al Khaimah intersect with Fujairah),and finally the Ras Al Khaimah branch (following RAK Telecommunications Authority's merger into **Emirtel**.
The Head Office comprised of the General Manager's office, and the departments of Engineering, Finance, Administration and Personnel, Legal Affairs, Marketing (responsible also for the telephone directory), and the Secretariat (responsible also for the shareholders' records).

> At that time, Emirtel was composed of a Head Office in the capital Abu Dhabi, and branches in Varius emirates

Each branch comprised of departments similar to those of the Head Office. These departments reported to both the branch manager and the concerned department at the Head Office. As for the Marketing Department, the corresponding department at the branches was the Sales Department.

Opening of a new Telephone Exchange at the early days of **Emirtel**

Emirtel:

Capital Growth and Share Increase

Before continuing with the story of the development of the UAE telecommunications sector, I need to share some important facts that I came to know from my work in this sector.

Emirtel's paid up capital upon incorporation was AED100 million, divided into one million shares of AED100 each. The UAE Government, represented by the federal Ministry of Finance, owned 600,000 shares (AED60 million), representing 60% of the share capital, while each of the two foreign firms C&W and IAL owned AED20 million (200,000 shares), or 20% of the share capital. The two foreign firms were tasked with the management of the company in consideration of a mutually agreed fee.

In 1979, the Government reached an agreement with the two foreign firms to reduce their overall shareholding from 40% to 20%, with each getting 10%. The Government offered the resulting 20% for sale to UAE nationals. As there was no stock market yet, the shares were put for sale through the banks. The Government bought the shares from the two

"Emirtel's paid up capital upon incorporation was AED100 million, divided into one million shares of AED100 each"

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companies for AED270 per share and resold them to nationals for AED170 per share.

With that transaction, Emiratis came to own 20% of the company's shares. It was an unparalleled step, as the Government offered shares to its own citizens at a subsidized rate and enabled them to own shares in a vital sector. Thanks to that unprecedented method of sharing wealth amongst its citizens, some of the Emiratis who took advantage of that opportunity became senior shareholders in the ensuing years. It can be safely said that the UAE was a world leader in allowing the private sector to own shares in the telecommunications sector, at a time when most telecommunications companies in the world were wholly owned by governments.

By 1981, the Government decided to buy the remaining shares still owned by the two foreign companies. It bought them for AED 660 per share and resold them to Emirati citizens at the same price. Shortly after that, **Emirtel** decided to provide each shareholder two free shares for each share they held, which meant that each shareholder who bought a share for AED 660 would have three shares instead of one, as if he had bought it at the rate of AED 220 per share. As a result, the number of shares increased from one million to three million, and the capital from AED100 million to AED300 million. In the following year, **Emirtel** issued another three million shares as right issue equity and allowed all shareholders to subscribe with a similar number of shares at the nominal price of AED100. That brought the number of shares to six million, with a value of AED600 million. In the same year, it issued one free share for each paid share, which brought the number of shares to 12 million at a total capital value of AED1.2 billion. Hence, **Emirtel**'s capital grew 12-fold within just six years.

Emirtel continued to grow and realize higher revenues and profitability, which enabled the company to expand its services and to distribute large amounts as dividend and allocate free shares to its shareholders. Every

two or three years a new batch of free shares were allocated at the annual meeting of the shareholders.
Later on, the shares were split from a nominal value of AED100 at the time of incorporation to AED10, and later to AED1. This happened in several instances to align with market changes. Thus, a holder of one share subsequently owned 100 shares.
To illustrate the importance of the mentioned action by the Corporation, if a shareholder bought one share in 1979 for AED170, and another one in 1982 for AED100 as part of the right issue, it meant that he owned two shares with a combined value of AED270 and a nominal value of AED200 for both shares. The ownership of that shareholder by the end of 2012, the year I left, would be 6,640 shares at a nominal value of AED6,640 and a market value of AED106,240, assuming the market value was AED16 per share. He would also have received AED41,893 as share

.Mr. Ali Alowais, General Manager at farewell party for Mr. Donor

"Emirtel's capital grew 12-fold within just six years"

"the shares were split from a nominal value of AED100 at the time of incorporation to AED10, and later to AED1"

dividends for the same period. In addition, the share fractions due to that shareholder would be sold at the then market value and paid to him. In effect, the total value of the shares owned by that shareholder grew 548 fold to AED148,133, in 33 years, which is a very high rate, perhaps one of the highest in the world. Naturally, **Etisalat** continued in the ensuing years after 2012 to distribute high annual share dividends.

The table in the next page illustrates the progress of share and profit allocation since incorporation.

> **Share value grew 548 times in 33 years**

Year	Capital in dhs	Number of shares at beginning of year	Nominal Value per share in dhs	Gov share %	Foreign op %	National share %	Divedend paid per share	Bonus shares per share
1976	100,000,000	1,000,000	100	60.00	40.00	0.00	0.00	0.00
1976 - 1977 16 Months	100,000,000	1,000,000	100	60.00	40.00	0.00	13.00	0.00
1978	100,000,000	1,000,000	100	60.00	40.00	0.00	10.00	0.00
1979	100,000,000	1,000,000	100	60.00	20.00	20.00	10.00	0.00
1980	100,000,000	1,000,000	100	60.00	0.00	40.00	10.00	0.00
1981	300,000,000	1,000,000	100	60.00	0.00	40.00	25.00	2.00
1982	1,195,288,800	3,000,000	100	60.00	0.00	40.00	20.00	3.00
1983	1,195,288,800	11,952,888	100	60.00	0.00	40.00	75.00	0.00
1984	1,195,288,800	11,952,888	100	60.00	0.00	40.00	50.00	0.00
1985	1,195,288,800	11,952,888	100	60.00	0.00	40.00	50.00	0.00
1986	1,195,288,800	11,952,888	100	60.00	0.00	40.00	75.00	0.00
1987	1,494,111,000	14,941,110	100	60.00	0.00	40.00	35.00	0.25
1988	1,494,111,000	14,941,110	100	60.00	0.00	40.00	40.00	0.00
1989	1,494,111,000	14,941,110	100	60.00	0.00	40.00	40.00	0.00
1990	1,494,111,000	14,941,110	100	60.00	0.00	40.00	40.00	0.00
1991	1,494,111,000	14,941,110	100	60.00	0.00	40.00	50.00	0.00
1992	1,494,111,000	14,941,110	100	60.00	0.00	40.00	50.00	0.00
1993	1,494,111,000	14,941,110	100	60.00	0.00	40.00	50.00	0.00
1994	1,494,111,000	14,941,110	100	60.00	0.00	40.00	50.00	0.00
1995	1,867,638,650	14,941,110	100	60.00	0.00	40.00	50.00	0.25
1996	1,867,638,650	18,676,288	100	60.00	0.00	40.00	50.00	0.00
1997	2,334,548,438	18,676,288	100	60.00	0.00	40.00	50.00	0.25
1998	2,343,749,938	23,345,484	100	60.00	0.00	40.00	50.00	0.00
1999	2,812,499,925	23,345,484	100	60.00	0.00	40.00	50.00	0.20
2000	2,812,499,925	28,124,999	100	60.00	0.00	40.00	50.00	0.00
2001	3,000,000,000	28,124,999	10	60.00	0.00	40.00	5.00	0.07
2002	3,000,000,000	300,000,000	10	60.00	0.00	40.00	5.00	0.00
2003	3,000,000,000	300,000,000	10	60.00	0.00	40.00	5.00	0.00
2004	3,300,000,000	300,000,000	10	60.00	0.00	40.00	5.00	0.10
2005	3,630,000,000	300,000,000	1	60.00	0.00	40.00	0.50	0.00
2006	4,537,500,000	3,630,000,000	1	60.00	0.00	40.00	0.60	0.25
2007	4,991,250,000	4,537,500,000	1	60.00	0.00	40.00	0.60	0.10
2008	5,989,500,000	4,991,250,000	1	60.00	0.00	40.00	0.60	0.20
2009	7,187,400,000	5,989,500,000	1	60.00	0.00	40.00	0.60	0.20
2010	7,906,140,000	7,187,400,000	1	60.00	0.00	40.00	0.60	0.10
2011	7,906,140,000	7,906,140,000	1	60.00	0.00	40.00	0.60	0.00
2012	7,906,140,000	7,906,140,000	1	60.00	0.00	40.00	0.70	0.00
2013	7,906,140,000	7,906,140,000	1	60.00	0.00	40.00	0.70	0.00
2014	7,906,140,000	7,906,140,000	1	60.00	0.00	40.00	0.70	0.00
2015	8,696,754,000	7,906,140,000	1	60.00	3.09	36.91	0.80	0.10
2016	8,696,754,000	8,696,754,000	1	60.00	3.63	36.37	0.80	0.00
2017	8,696,754,000	8,696,754,000	1	60.00	4.09	35.91	0.80	0.00

Evolution of **Emirtel** Services

As telecommunication services were extremely costly at the beginning, the two British companies in charge of managing **Emirtel** focused on the highly populated, high-income, areas and paid little attention to remote areas. That approach was in contradiction with the policy of the UAE Government, which clearly wanted to see telecommunication services delivered to every single household across the country. Hence, the Government purchased the shares of the two foreign firms and reallocated them to UAE nationals. The management contract was terminated and a new national management, run by Emiratis and international experts, was created.

I must highlight here the instrumental role played by His Excellency Mohammed Saeed Al Mulla, the then Minister of Telecommunications and Chairman of **Emirtel** Board of Directors, who put his leverage behind that idea. I will elaborate more on this in a later section of this book.

Following the management change in 1982, Ali Bin Salim Al Owais was appointed as General Manager, replacing Jeff Downer. I will come back later to Mr. Al Owais and his tenure as General Manager.

As part of the deal, some members of the administrative and technical teams of the two British companies were retained and allowed to work under revised contractual terms.

Glimpses of Personal History
The First Graduate Trainee
and a Trip to Japan

> The UAE Government wanted to see telecommunication services delivered to every single household across the country

On 3rd of November 1977, I began my career as a graduate trainee engineer at the Radio Section of **Emirtel** in Sharjah. I was the first to be given the title of Graduate Trainee. In August 1978, I was given the opportunity to take part in a satellite communication course in Japan through a scholarship grant from the Japan International Cooperation Agency (JICA). This was part of a series of grants offered by the Japanese Government to different countries.

Satellite technology was fairly new at that time, and only a few countries possessed it. The UAE was way ahead in this field, with several earth stations already in place. The first was in Jebel Ali (which is still in existence), and a second one was built in Abu Dhabi after the creation of **Emirtel**. It was the first earth station in the UAE to use digital technology. A

> I must highlight here the instrumental role played by His Excellency Mohammed Saeed Al Mulla, the then Minister of Telecommunications and Chairman of Emirtel Board of Directors

third earth station was established in Ras Al Khaimah as part of the local company there.
I still remember one day, during my first months of work in Sharjah, when an international boxing match with Muhammed Ali was received live from the US through the Jebel Ali Satellite earth Station, and broadcast by Kuwait TV in Dubai. It was perhaps the first live TV broadcast in UAE's history.

I spent three months, 92 days to be exact, in Japan during which I had significant exposure to satellite technology. It was a great experience, as I had the chance to acquaint myself with a new technology little known by most of my generation, and to see closely a great civilization built on the principles of respect, accuracy, and dedication.
We were 15 engineers from Asia, Europe, the Arab world, Africa, and Latin America. The first two days were dedicated to general information and explanation of key Japanese words that we would need for our daily communication, in finding suitable food, using public transport and making bank transactions. It was in Japan that I saw and used an ATM for the first time in my life. I learned a lot in the area of telecommunication, particularly satellites and how to interact with them through earth stations. I also learned to work as part of a team, where the tasks are split among the group members, before analyzing the information and discussing the results.

I was highly impressed by the professionalism and dedication of the Japanese people. Transferring to another company was a rare occurrence in Japan at that time; most Japanese spent their career lives in the same company they joined upon graduation. In return, the company took good care of its employees and treated them as owners. I benefitted

tremendously from this; it was a great help in my career development and approach to problem solving.

I returned from Japan in November 1978, coinciding with the first anniversary of my employment. I was then appointed as a telecommunications engineer. I worked for a short period at the Jebel Ali Station then transferred back to Sharjah. In 1979, I was promoted to the position of senior engineer of long-distance communications. Sharjah was the base of the West Coast branch, which included the Emirates of Sharjah, Ajman, Umm Al Quwain and Sharjah's Central District of Dhaid.

My division's role at that time was to oversee the communication link between Dubai and Sharjah, through cables, microwave radio system, and multi-channel system.

We were also responsible for managing the connection to Dhaid, Ajman, and Umm Al Quwain using the

"My division's role at that time was to oversee the communication link between Dubai and Sharjah, through cables, microwave radio system, and multi-channel system"

Satellite Earh Station

Microwave tower

multi-channel system. That was one of the core tasks of my division. We also oversaw the installation and maintenance of single channel radio lines to connect residential and business customers who were unreachable by cables. Examples of those were Sharjah Cement Factory (located between Sharjah and Dhaid) and farms in remote areas or islands, such as poultry farms in Sharjah, and connection with Abu Musa Island, etc.

When I joined **Emirtel**, a high frequency (HF) radio was still in use between Khor Fakkan and Sharjah. The transmitter was several kilometers away from the receiver but when better technologies were introduced, the HF technology was replaced, and connection became easier through Fujairah. At this time, the Corporation was testing a new technology whose theoretical aspects I had studied at the university but had not seen in practice. This was the Pulse-Code Modulation (PCM), which allows transfer of analogue signal to a binary value as represented in a series of pulses. Put in simpler language, it is a high-quality telecommunications technology that later became the foundation of digital communication.

To the East Coast

In 1980, upon instruction of the Head Office Management, I was transferred to Fujairah, a city on the Gulf of Oman in the Indian Ocean. Fujairah was the base of **Emirtel**'s East Coast Branch, which served parts of Sharjah and Ras Al Khaimah Emirates in addition to the Emirate of Fujairah. My new position was Deputy Branch Manager. The Branch Manager was a British man, as was the trend at the time. He was seconded to **Emirtel** from Cable & Wireless. The Engineering Manager and the Marketing and Sales Manager were also British, while the Finance and Administration Managers were Indian nationals. There was also a group of British engineers, while the clerical jobs were taken up by Indians and a small number of Emiratis and Arabs. I was the only Arab and Emirati holding a senior position in the branch.

To my surprise, the Branch Manager asked me to take care of administrative and financial aspects, which had nothing to do with my study as an engineer. I believe he wanted to keep me away from engagement with the British employees who dealt with him directly as he did not want me to know specific details of the work. I had little or no knowledge in administration

> In 1980, upon instruction of the Head Office Management, I was transferred to Fujairah, a city on the Gulf of Oman in the Indian Ocean. Fujairah was the base of Emirtel's East Coast Branch

> the Branch Manager asked me to take care of administrative and financial aspects it was an excellent opportunity that allowed me to get abreast of the details of accounts from the meticulous Finance Manager, and from the accounts unit.

and finance, but rather than protesting, I accepted the assignment as a personal challenge and decided to take it as an opportunity to learn new fields.

As it turned out, it was an excellent opportunity that allowed me to get abreast of the details of accounts from the meticulous Finance Manager, and from the accounts unit. I also learned the basics of procurement and administration, and such personnel matters as employees housing, allowances, and promotions. It was a practical course and I became fully conversant with all those aspects. At the same time, I had a chance to learn about more engineering issues that specifically intersected with the work of other departments. It was a very beneficial learning experience.

During my work in Fujairah from early 1980 to early 1981, telecommunications services were concentrated inside Fujairah city and in certain places in Kalba, Khorfakkan and Dibba. We worked on extending those services to all the villages between Khor Fakkan and Fujairah, into the mountainous areas in Kalba, and in Masafi village and the surrounding areas at the junction between the Emirates of Fujairah and Ras Al Khaimah. That work was a good chance for me to know closely those areas and their needs.

After Fujairah, I moved to Ras Al Khaimah in early 1981, and a new chapter of my career journey and the history of telecommunications began to unfold.

Work in
Ras Al Khaimah and the Merger

As per the agreement between the Government of Ras Al Khaimah and **Emirtel**, the latter acquired RAKTA, the official telecommunications operator of Ras Al Khaimah, for around AED 55 million.

Upon arrival there, I discovered that my role was to implement many agreements that had been signed. I was appointed as Deputy Branch Manager and Representative for **Emirtel**. As elsewhere, the Branch Manager was British, and the administrative and accountancy staff were predominantly Indians. Engineering jobs were dominated by the British and there were a few Emiratis and other Arabs.

The Branch Manager was not comfortable to see me in the position of Deputy Branch Manager. He gave me an office far away from his, down the hallway near the restroom. As usual, I remained calm and concentrated my attention on studying the network expansion and implementing the extension of telecommunication services, which were a priority for **Emirtel**.

One day in early 1982, I received an administrative order from the Head Office naming me as Branch

> Emirtel acquired RAKTA, the official telecommunications operator of Ras Al Khaimah

> The Branch Manager was British, and the administrative and accountancy staff were predominantly Indians. Engineering jobs were by the British dominated

Manager and appointing the incumbent manager as my advisor. As he happened to be abroad at the time, I relocated to his office and gave him mine down the hallway!
I never confined myself to one place, though. I served as an alternative for other Branch Managers, attended many meetings in Abu Dhabi, and worked in Sharjah, Al Ain, Fujairah, and Dubai in addition to my usual work in Ras Al Khaimah.

At that time, the telecommunication services were only available in the old Ras Al Khaimah city and the Al Nakheel area, which was the Emirate's dynamic trade center, and in Khor Khowair, where the cement factories were located. These factories were managed predominantly by British nationals. There was no telecommunication services in other areas of the Emirate except through single channel radio dedicated to a single user, such as police and government. Many areas, such as Al Jazirah Al Hamra, Al Rams, Al Kharran, Al Dagdaga, Adhen, Shaam and others, were not covered by telecommunications services although they were only ten to 30 kilometers away from the center.

A top priority for us was to expand the telecommunication services to all parts of Ras Al Khaimah. We started with loaded cables, a technology that enables the addition of specific equipment that could provide the cable with sufficient extra electric power to extend the lines up to 15 kilometers from the switch. That would allow connection of the nearby areas until new exchanges were procured. That was particularly useful because new switching systems used to take quite a long time to be delivered.
A breakthrough took place when **Emirtel** signed a deal with the Swedish company Ericsson to deliver digital switches, a brand-new technology in which Ericsson was the world leader. Years later, that technology

dominated the scene in all parts of the world.

Emirtel was particularly courageous in adopting emerging technologies. Based on the recommendation of the International Telecommunication Union (ITU), **Emirtel** invited experts from Japan and India, who recommended the adoption of digital technology. Accordingly, **Emirtel** installed a switch in downtown Ras Al Khaimah. It was the first of its kind in the UAE, and the second worldwide, to be manufactured by the Swedish company. The first was commissioned in Turku, a historic city in Finland that witnessed major events and was the capital before Helsinki. I visited the city in 1981 while in Sweden to attend the Ericsson Maintenance Conference, at a time when the digital switching systems were being tested in Sweden, and under construction in the UAE.

> A breakthrough took place when Emirtel signed a deal with the Swedish company Ericsson to deliver digital switches

The engineers were skeptical at certain times about the viability of the switching system because the technology was still new and not yet applied anywhere in the world (except on trial in Turku). We started to work on the first switch, but there was a need for many more to meet the mounting demand.

> Emirtel was particularly courageous in adopting emerging technologies

The ordering process was neither simple nor easy. The manufacturer needed two years or more to deliver the order. To cope with the pressing demand, we would deploy a portacabin based switches to an area of high pressure and allocate a smaller one for a lower pressure area. I had the chance to visit Sweden

again in 1986, this time I went to Kalmar, a city in the southeast, on the Baltic Sea. The purpose of the visit was to attend a course on digital telecommunication technology, its advantages and services. There was lively debate as the technology was still new, eliciting many questions. I remember I raised a question; are we creating customer's need to new technology and I was referring to mobile service at that time. One of the participants came up with a very good answer: we are making the customer aware of their needs... I liked the answer although some may not share the same opinion I had.

Chapter Two

A Telecommunication Revolution on the Horizon

In this chapter, I will address some points that I felt are worth sharing with the reader, about our method of work at **Emirtel** and how we tackled various issues.

I must begin by saying that the work environment was highly motivating. We were all aligned to the common goal of helping our organization to achieve its set objectives and proactively contribute to the development and progress of the UAE.

The need for modern telecommunication services surged in the early 1980s on the waves of the development boom that swept the UAE. **Emirtel** management decided to build a mobile phone network. I was not personally involved in the discussions that led to the adoption of that well thought out decision. Kuwait had already started a mobile network, based on the Nordic Mobile Telephony (NMT) system, which had been in use in Scandinavia, and later in Saudi Arabia. Most of Europe was lacking public mobile services.

The mobile age in the UAE began in 1983, one year before I moved to Abu Dhabi as Deputy General Manager. The mobile phone ushered in a new chapter of change and development, and a telecommunication revolution began to build up in the UAE horizon. With my move to Abu Dhabi, I became part of a bigger group with a wider vision spanning the whole UAE, in a management team led by Emirati talents and

> "The mobile age in the UAE began in 1983"

> "With my move to Abu Dhabi, I became part of a bigger group with a wider vision spanning the whole UAE"

comprised of some of the best engineers and executives from different Arab countries and other nationalities, all working towards the common goal of providing state-of-the-art services. Honestly speaking, the 1980s, which saw the departure of foreign operators and their replacement with Emirati leadership, was truly the golden era that set a strong foundation for the future.

The International Telephone Code and the UAE Numbers

The world telecommunication sector is working under the umbrella of a UN organization known as the International Telecommunication Union (ITU). It was first established in Paris in 1865 under the name of International Telegraph Union. It was then renamed in 1932 as the International Telecommunication Union, which became a UN specialized organization in 1947.

From the early 1960s, the ITU started to designate unique code numbers for communication of telephone calls to different countries. At first, those code numbers were used by switch operators to connect the calls. However, with technological progress that enabled calls to be made directly by the subscriber, a need arose for the designation of unique code numbers for each country. These were either one digit or a combination of two or three digits from one to nine, used for calling from one country to

another. This system was affirmed in 1968.

Before the birth of the UAE Federation, we had several code numbers as some emirates had their own international codes. Following the creation of the Federation, the UAE decided to use the Code 971 as the country's standard international code and dropped the others.

International code numbers were allocated to the countries of the world as follows: the USA and Canada (1), Africa (2), Europe (3 and 4), Latin America (5), Australia and some East Asian states (6), the former USSR (7), other East and Central Asia states (8), West Asian states, including Arab countries in Asia (9).

Within the UAE, city codes were allocated as follows: Abu Dhabi (2), Al Ain (3), Dubai (4), Sharjah, Ajman, and Umm Al Quwain (6), Ras Al Khaimah (7), and the East Coast, including Fujairah (9). Those codes were for the landline network. When the mobile telephone network was introduced, **Emirtel** decided to use the code (5), starting with 50, then 55 was added for du, and more numbers were subsequently added to cope with the increasing demand for mobile numbers.

For the length of telephone numbers, we started with five digits, then six and finally seven. As a person with a strong passion for mathematics and numbers, I found myself at the heart of this exercise.

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Renaming **Emirtel**, Birth of '**Etisalat**' \ with an 'e'!

When the Emirates Telecommunications Corporation was established in 1976, it was given the abbreviated name **Emirtel**, which continued to be used for several years. In 1986, H.E. Mohammed Saeed Al Mulla informed us that the late Sheikh Zayed instructed him to replace that foreign name with an Arabic one. As an Arab country, he thought we ought to use an Arabic name, not a foreign one.

After lengthy discussions, we proposed **Etisalat** which means telecomminicction in Arabic as a new name. H.E. the Minister presented it to the Cabinet, which approved it. When we came to writing the name in English, there was a consensus on writing it with an 'e' rather than an 'I'. One justification was that while writing it as Itisalat with an 'I' was a more accurate reflection of the original sound, the letter 'I' stood alone from the rest of the letters, unlike the letter 'e'. Also, the letter 'e' has its symbolic

Emirtel Logo

First **Etisalat** logo

Second **Etisalat** logo

importance in mathematics and physics (e.g. Epsilon) and is the first letter in 'Emirates'.

I recall that after the official launch of the name, we received a message from the British Ambassador wondering why we chose to write it with an 'e' rather than an 'I'. We appreciated the Ambassador's zeal to protect his native tongue. However, the letter 'e' was eventually adopted as the Company's official brand.

Before continuing with this historical overview of the UAE telecommunications sector, I need to say a few words about two important developments.

> H.E. Mohammed Saeed Al Mulla informed us that the late Sheikh Zayed instructed him to replace that foreign name with an Arabic one

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After signing **Etisalat** License with TRA director General

> I recall that after the official launch of the name, we received a message from the British Ambassador wondering why we chose to write it with an 'e' rather than an 'I'

A Telecommunications Law Establishing a Second Operator, and my Appointment as Chairman & CEO

In April 2004, H.H. Sheikh Hamdan Bin Zayed, then the UAE Minister of Foreign Affairs, went on a tour of Asia leading a high-level delegation that included H.E. Ahmad Humaid Al Tayer, (appointed as Minister of Telecommunications in 1997), besides other ministers, senior executives, and businessmen. I was part of the delegation on the 12-day tour that took us to South Korea, Japan, and China.

A big surprise awaited us on our second day in South Korea. A new law was announced in the UAE opening the market for a second operator. Although a surprise for many, the announcement was only logical. With the expansion and diversification of the telecommunications service, it had become imperative to open up the market for competition, rather than keeping it locked for one operator. Under the new arrangements, a dedicated government authority had to be created to serve as regulator of the services.

During the trip, I spent most of my free time with the businessmen who were part of the delegation. I remember some of them, who owned shares in **Etisalat**, asking me about the impact of the decision on **Etisalat** shares. I told them that competition would only make us stronger, and I drew a simple analogy. It was like an athlete who had been on a strict daily exercise, I said. If such a person was invited to a race at any time,

he would stand a good chance of winning. That was exactly what happened.

Change is inevitable in all domains of life, particularly in the worldwide telecommunications sector. It was time that we opened the door for competition in the UAE, as UAE was already a leader in this area and should not lag behind. The new company was called the Emirates Integrated Telecommunications Company (du). The Federal Government held 40% of its shares.

"Change is inevitable in all domains of life, particularly in the worldwide telecommunications sector. It was time that we opened the door for competition in the UAE"

Subsequently, the Government named a board of directors for the Telecommunications Regulatory Authority TRA, the body entrusted with regulating the telecommunications services in the UAE.

Etisalat's General Manager Mr. Al Owais, who had long been mulling retirement, found it the right time to retire once the new decree was issued, so **Etisalat**'s Board of Directors entrusted me to take over as acting General Manager. In 2005, a decree by H. H. Shaikh Khalifah bin Zayed, the President of the UAE was issued appointing me as Chairman of the Board and CEO of Emirates Telecommunications Corporation (**Etisalat**).

"Etisalat's General Manager Mr. Al Owais, who had long been mulling retirement, found it the right time to retire once the new decree was issued"

Although the prevailing practice in the UAE, based on the governance requirements, was to keep the Board Chairman and the CEO as separate positions, the decree made an exception. In light of the anticipated

competition between the two major companies, and for the sake of effective management, I was asked to take up both positions.

A Well-Founded Futuristic Vision

Our future vision was not born overnight. We were in continuous discussions from the early 1990s, keeping a close watch on the developments of telecommunications on the global scale.

We believed that our efforts for our progression should concentrate on the Internet and the mobile networks. Therefore, we made substantial investments in submarine cables as we thought it was vital to transform the UAE into an international telecom and Internet hub, and link it with the world's international centers, particularly the USA and major hubs east and west. On the mobile front, we were among the first nations to apply the GSM, and then the G3 and subsequent generations.

While working on internet connections to business and residential clients, we quickly realized the need for speeds higher than those that were being provided by the Digital Subscriber Lines (DSL). We realized that the right answer was to connect every household, office and subscriber to fiber optic lines. Despite its relatively high cost, fiber optics was widely recognized as the most appropriate solution, which had already been

adopted by many countries, including Japan, South Korea, and Hong Kong.

Accordingly, we decided to build an integrated fiber optic network to cover all customers across the UAE. Thanks to that decision, the UAE today ranks among the top five countries in the world in terms of the fiber optic network coverage. Despite doubts over the viability of fiber optics due to its high cost, and suspicions about the market's ability to absorb it, we eventually applied it ahead of many European countries. Today more than 90% of UAE households are now fiber optic connected.

> Our future vision was not born overnight. We were in continuous discussions from the early 1990s, keeping a close watch on the developments of telecommunications on the global scale

From the position of responsibility as Chairman and CEO, I thought it was vital for the UAE development. I felt we were duty bound to keep pace with the long-term vision of our leaders who kept raising the bar of expectations and had boundless ambitions.

On the other hand, given the presence of a competitor, we thought it was also vital for us to enhance the quality of our services and diversify them. Today, **Etisalat** owns a state-of-the-art fiber optic network whose future expansion would not cost much. I understand also that the second operator has been building an extensive fiber optics network across the UAE as well. This provides better reliability and more options for times of necessity.

> The UAE today ranks among the top five countries in the world in terms of the fiber optic network coverage

We understood from international firms such as France Telecom, Deutsche Telekom and Italy Telecom that their cost for fiber optics could go to as much as 3,000 euros per line, because the networks needed substantial digging and laying of ducts and conduits. We, in the UAE, had anticipated that from the very beginning. During duct laying, we placed spare ducts for future use. This proved to be a substantial cost saver and gave us a great advantage. Also, the fact that we used US and Chinese technology was another cost-reducing factor, and we managed to cope with progress and move from one generation to another, making substantial speed enhancements in the process. Today, **Etisalat** is in the process of rolling over the 5th Generation.

Challenges of the New Position

While every position has its challenges, the position of Board Chairman and CEO had a unique set of challenges. It was only after assuming the actual duties that I realized how Mr. Ali Al Owais, my predecessor, had tried his best to spare us many troubles. We had had our differences on many issues, but then I realized that he had been doing his best to protect us.

I had to deal with all sorts of people; shareholders, government officials, employees, UAE nationals and people from different nationalities who

would not settle for less than the best. Everyone wanted the best service at the lowest price. Expatriates wanted a service better than their home countries. We were under immense pressure to provide the best quality of service at a reasonable price.

The biggest challenge was how to please all those segments of clients and stakeholders and meet their expectations. Fortunately, we managed to transform that challenge into an opportunity. Today, the UAE is on the world's list of top providers in the telecommunications services performance indicators.

"While every position has its challenges, the position of Board Chairman and CEO had a unique set of challenges"

"The biggest challenge was how to please all those segments of clients and stakeholders and meet their expectations"

Chapter Three

Land and Mobile Phones: A Leap into the Future

On the 10th of March 1876, Alexander Graham Bell made the world's first ever telephone call, marking the beginning of a new era of remote communication between people. As history tells us, many communities around the world, who first saw or heard about that technology, dismissed it as magic.

Fifty years later, in 1927, the first trans-Atlantic telephone call was made between London and New York. It ushered in a new era of trans-continental telephone calls and effectively reduced the world into a small village where, virtually, any person could talk to another person, anywhere in the world.

Unfortunately, I could not find accurate information about the first telephone call ever made in the UAE. It is certain, however, that the British Base in Sharjah, built in the 1930s, was the first to make local and international phone calls.

By the late 1950s/early 60s, a few small firms were established in some emirates to provide telephone and cable services to companies and individuals. Those firms were later merged into one entity: The Emirates Telecommunications Corporation **Emirtel-Etisalat**.

"The British Base in Sharjah, built in the 1930s, was the first to make local and international phone calls"

Land Communications

When I first joined **Emirtel**, it was providing landline, telegrams, and telex services. The major service was telephone calls, carried out through exchanges and customer connection cables attached to fixed telephone sets, operating from homes and offices. Some companies used a Private Automatic Branch Exchange (PABX).

Telephone Switches in Major Cities and Radio Connections

We had telephone switches in all major cities. There were around 30,000 lines operating UAE-wide, all using the public switched telephone network (PSTN).

There were two types of switching systems: the first was known as step-by-step switching. This technology was invented by the US firm Strowger in the

late 19th century. The first switch went into operation in 1892 and was the first automatic switching system without the need for telephone operators to connect calls. The second system, the Cross Bar Switching, was introduced in the late 1940s. Invented by the American company Bell Labs, this improved system provided higher speed, better accuracy, and lower noise, and did not need continuous maintenance.

> We had telephone switches in all major cities. There were around 30,000 lines operating UAE-wide, all using the public switched telephone network (PSTN)

Operating at 48/50 volts, those switching systems needed power transformers from the standard 220/380 volts. They also needed batteries and uninterrupted power supply equipment to ensure continuity of operation in case of power cuts. Those technologies were available at **Emirtel**.

The switching systems were connected to multi-line cables through a big matrix known as the Main

Stowger Telephone exchange

Distribution Frame (MDF). Multiline cables extended from the MDF to the distribution areas, where they were divided into smaller groups to serve the different neighborhoods through cabinets, and then into even smaller groups called Distribution Points (DP) and ultimately to homes, outlets, and offices.

The cables were laid out largely in plastic pipes, accessible through tightly closed underground manholes that could be opened when it was necessary to do repairs or add new connections. The cables could reach up to six or seven kilometers from the center, and additional sets of equipment were used to deliver the service through cables for up to 15 kilometers.

Switching systems were linked together through cables, multichannel radio or microwave. In certain cases, calls had to be done through operators. If you wanted to call someone in a different city, you needed to contact the operator to connect you to the desired number. Needless to say, international calls to some countries were also operator-controlled.

Local and international telegraph services were available in both Arabic and English and charged based on the number of words. As telegrams had to be typed by the telegram operators, transmission might be delayed depending on the number of telegrams and operators available. Urgent telegrams were charged at double the normal rate. Telegrams were usually used for urgent matters, or to send congratulatory cables on special occasions, or for areas with no telephone services.

At the International Telephone and Telegraph Conference held in Melbourne, Australia, in 1988, I remember the Indian delegate who called on member states to maintain the telegram services because they were

still the sole means of communication for many parts of India at that time.

Big companies and banks were using another service: Telex. Similar to the telegraph system, it had an apparatus connected to a line, through a ground cable, into a dedicated telex switch. The telex operator in the company typed the text on a machine similar to a typewriter, fitted with a ribbon. As the telex operator hits on the keyboard, the letters were perforated into the ribbon and then transmitted. There were initially only two telex switchboards in Abu Dhabi and Dubai, but more were eventually introduced in Sharjah and other emirates. There were initially less than a thousand lines nationwide, which grew gradually but later declined with the introduction of the Internet.

Telephone services were provided by dedicated switching systems connected to subscriber-serving cables. Those switches were interconnected by cable and radio-based telecommunication systems. Usually a cluster of local switches were connected to a national switch serving as a link with other cities. Rapid developments in the sector brought about significant changes in the configuration of the switches. Nowadays a single center in the city, or the country at large, can handle all the calls and offer high reliability against breakdowns and disruptions. As more fiber optic cables were used, the old

“Switching systems were linked together through cables, multichannel radio or microwave. In certain cases, calls had to be done through operators”

“Big companies and banks were using another service: Telex. Similar to the telegraph system, it had an apparatus connected to a line, through a ground cable, into a dedicated telex switch”

technologies disappeared, and distance was no longer a decisive factor in the quality or price of the telephone call. As a result, the difference in the cost of telephone calls, whether local or international, on the fixed networks became negligible.

I must mention here that the high demand for telecommunications services in the 1980s motivated us to look for the best ways to provide quality services. As one who has been associated with this sector since its early beginnings, I can say we have always been a head and shoulders above the others in adopting top-of-the range technologies capable of providing the best services to our customers. We adopted the digital technology for local and international calls from early 1980s. At the time when it was still obscure and unrecognized elsewhere.

International Companies Vying to Work with Us!

At first, we contracted the Swedish company Ericsson, a leader in telecommunications and data transmission systems, to install digital switches in both the main and branch switching systems to link the various UAE cities.

Then we decided we should have two suppliers rather than one, so we signed a contract with Fujitsu of Japan. We adopted the principle of multi vendors in all our work, and this has become one of our strong points. We were open to deal with any international firm that could provide the services we needed.

Meanwhile, the French Alcatel kept knocking on our door, and we always greeted them with the same response: Here are our standard terms. If you accept them, we will be happy to work with you. One of our main terms was to have a copy of the source code software. Most firms adamantly declined to give out a copy of such software. At the beginning, Alcatel turned down that condition, along with other terms. They continued to take part in bids, but they never won one.

One day a vice president from the French company visited me to say they had accepted our terms. I asked him to participate in the next bid. Having submitted a competitive offer and satisfied all our conditions, they won the bid.

One of the notable new features offered by **Etisalat** was the caller ID on the fixed network, which was a value addition at that time. While the Ericsson system had the capability of adding that feature by simply uploading certain software to the switches, the Fujitsu

> "I can say we have always been a head and shoulders above the others in adopting top-of-the range technologies capable of providing the best services to our customers"

> "One of the notable new features offered by Etisalat was the caller ID on the fixed network, which was a value addition at that time"

system would do so only if expensive hardware and software were added. Here came to fruition one of the benefits of the condition that we were supplied with copies of the source code software to make them available to our engineers.

An Emirati engineer came to me and said he was able to develop a software that could do the job without any hardware support. I took him to the General Manager who welcomed his initiative and commissioned him to develop the software. We informed the manufacturer and asked them to do the necessary checks to ensure compatibility of the developed software to the original software. They confirmed that the development had no negative impact. Accordingly, we decided to go ahead with our engineer's suggestion and save the money that would have been paid to the manufacturer. Of course, the engineer received a worthy reward.

At the same time, we were approached by Nokia, who had good quality systems for remote areas and small communities. They accepted our conditions and we signed a contract with them. Thus, we were able to provide high quality services indiscriminately for all regions. Alcatel subsequently merged with the US firm Lucent to form Alcatel-Lucent, which is now part of Nokia.

We recognized competitive bidding as the best means to ensure provision of the best quality services at competitive prices. We awarded work to the bidder that best met our conditions and our objectives of improving the telecommunications sector and expanding the network coverage to all areas in the UAE without exception, in line with the Government's directives.

This was by no means an easy task. We met many hurdles. A major one was the need to cut cost. It was important, from a commercial viewpoint, to generate financial returns. However, in order to serve the national agenda, we were duty-bound to extend the service to all the remote areas irrespective of cost. In certain locations, the cost reached hundreds of thousands of dirhams to extend the service to just a few households. That might not make sense from a business viewpoint, yet it was at the heart of our mission.

> We always treated challenges not as problems but rather as opportunities

The environment posed several challenges as well, particularly its impact on radio signals. However, our technical teams were always there with appropriate solutions that suited our needs. We always treated challenges not as problems but rather as opportunities for exploring new solutions to answer such challenges. There is a big difference between the two approaches.

> Thanks to that multi-faceted approach, we managed to extend our services to customers with minimal wait-time. Dealing with the waiting lists was always a high priority that topped the agendas of our meetings

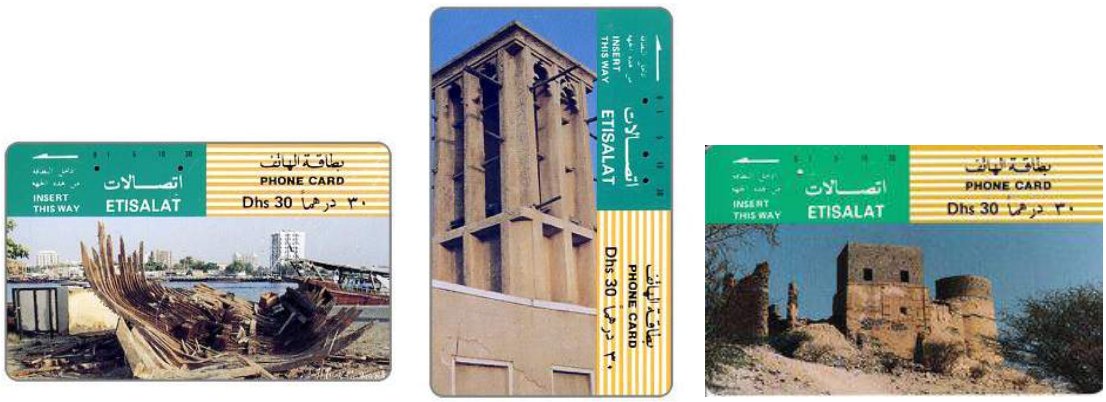
Thanks to that multi-faceted approach, we managed to extend our services to customers with minimal wait-time. Dealing with the waiting lists was always a high priority that topped the agendas of our meetings, as we searched for the best and speedy response to the ever-growing requests for service. In many cases, that proved to be particularly challenging. We had to keep pace with the rapid urban development and construction of infrastructure, to ensure

telecommunication services had been accounted for. But we often had to cope with last minute adjustments to government plans, which involved expansions, and to meet demand for service and reduce the waiting lists.

We had to live up to the expectations of the UAE leadership, who wanted to build an ultra-modern state. Inspired by that vision, **Etisalat** has presented a model of efficiency and effectiveness.

Public Payphones

As part of its corporate social responsibility to make the service available to everyone, **Etisalat** established public payphones. For many foreigners who had no access to land lines, that service was an ideal way



Public Payphone cards

of communicating with their families abroad. In light of the mounting demand for this service, we installed more and more units and provided the appropriate maintenance and service for them to operate efficiently.

As those payphones proved to be a good source of income, we adopted a plan to boost that income. Part of the plan was to allow many small private outlets to sell prepaid cards in consideration of an attractive commission. The additional income was a good incentive for shop owners, who took good care of the payphones, protecting them from abuse, and reporting any damage or malfunction. However, with the growing popularity of mobile phones, demand for payphones declined substantially, giving way to the new technology. That was only natural and a fact of life.

> "We had to live up to the expectations of the UAE leadership, who wanted to build an ultra-modern state. Inspired by that vision, Etisalat has presented a model of efficiency and effectiveness"

Mobile Phones

> "When the mobile phone first entered the UAE, it was a brand-new technology"

When the mobile phone first entered the UAE, it was a brand-new technology. There were different standards developed by different companies but there

were no international standards to govern them. We selected an analogue-based system developed by Panasonic, with a capacity of 5,000 lines, working at 400-megahertz Band.

The system used 380-megahertz frequency which was rarely used. Mobile units used 10-watt output power. The high output power coupled with the frequency band characteristics provided wide area coverage. The phone was able to work within a range of 30 to 40 kms from the base station. The system worked through one switch in Abu Dhabi and several base stations across the UAE. In some cases, under certain temperature and humidity conditions, signals could go much further.

We allocated the area code 50 as the code for mobile lines, followed by five digits after the code. The numbers were allocated to branches based on the anticipated size of their customers.

The customer equipment cost was around AED12,000 payable by the customer on subscribing to the service. Additionally, AED375 was charged for quarterly rental of the line, while the charge for calls between mobile to mobile or to landlines was set at AED0.9 per minute. That was a pretty high cost, but it was outweighed by the benefits.

Portable mobile set first system

Hudhud and Qannas handsets (TACS)

Tannaf mobile handset (TACS)

After my transfer to Abu Dhabi in 1984 as Deputy General Manager, we were faced with the need for more lines only one year after the inauguration of the first mobile phone system. With a capacity of 5,000 lines we had anticipated that the first system was sufficient for at least five years. Accordingly, we had to move fast to meet the rapidly growing demand for mobile phones, but also to take advantage of the high income for the Corporation.

"With a capacity of 5,000 lines we had anticipated that the first system was sufficient for at least five years"

As the system could not be expanded to accommodate additional lines, we had no alternative but to procure another system to serve in parallel with the existing one. That was a great boost as it enabled us to have 10,000 lines instead of 5,000.

It may be worthwhile to note that the mobile at that time was a big apparatus, installed in the trunk of the car. It had special connections and headsets. It was connected to an external antenna and operated only from inside the car.

Later on, as the need grew for a fully portable mobile set instead of one fixed in a car, we contacted the manufacturer, who developed for us a 5 kg set, inside a bag, with a big battery that resembled an old video camera. It was the same apparatus that used to be placed inside the car. That was the first time the

portable mobile phone was introduced to the UAE. Things remained the same up to early 1987, when we started applying a new technology.

TACS

As demand for mobile phones continued to grow, we intensified our search for a new technology that could meet the growing need for this service, which had by then become a cornerstone of **Etisalat**'s service development strategy. We decided to introduce the Total Access Communication System (TACS), a technology that had just been put into use in some European countries. It was an improved version of another system, the American Mobile Phone System (AMPS), first developed by the American firm Bell Labs.

TACS system operated at a frequency of 900 megahertz, which meant it had a much smaller cell coverage area compared to its predecessor, but it allowed more reuse of frequency, and thus a higher potential for increasing the number of lines. After a fierce competition between international firms, the Swedish Ericsson won the contract for the supply and installation of the system, which went into operation in late 1987, with an initial capacity of 60,000 lines, expandable to 100,000.

As the system was already in use in many countries, several manufacturers were available to produce the associated handsets. We started with a relatively smaller set, in the form of a small portable handbag, weighing around 2 kgs, produced by Panasonic. We named it “Al Jawwal” which means the traveler from one location to the other. I believe we were the first to use that name. Later, the Japanese NEC offered us a smaller set, weighing around 1 kg. As mobiles grew smaller, they acquired more capacities, while users grew more demanding.

> We decided to introduce the Total Access Communication System (TACS), a technology that had just been put into use in some European countries

From Jawwal to Anis

With appliances from multiple sources now available, we had to distinguish them with specific names. After lengthy discussions, we decided to rename the NEC set “Anis”, an Arabic word meaning “a companion who brings happiness”, which we thought relevant to the function of the mobile phone as a means of communication with the world. Our General Manager Ali Al Owais was very good at

coining names. I will later come to shed light on some aspects of his extraordinary personality. Thus, we kicked off the ‘Anis’ era.

Shortly after that, with the spread of smaller size mobiles, we discovered that there were some appliances available in the market that were capable of eavesdropping on mobile phones. That was very serious issue because it put privacy of family and business calls at risk. So, we brought in a specialized company to encrypt the system and devices to protect them against any such breach.

As I look back to the TACS period, I can see how dynamic it was, full of major changes, technology breakthroughs, inventions, and new ideas. Mobile Phones were not available in the local market, so we had to order them to custom-made specifications. Some of them were unusually big due to the encryption technology built into them. That system continued to be used in tandem with the old analogue one until the modern GSM systems rendered both of them obsolete.

Jawwal Mobile set (TACS)

Anis Handset (TACS)

Paging

Before getting to the GSM, let me say a few words about another service, the Paging System. The paging system was basically a wireless communication device that received and displayed alphanumeric messages. It was used mainly in hospitals and private businesses.

"We introduced Paging system to the UAE because it was cheaper, and light enough to be carried in the pocket"

We introduced Paging system to the UAE because it was cheaper, and light enough to be carried in the pocket. When someone was trying to call you, the pager would ring and the caller's number would appear on the screen so you could call back from the nearest mobile or land line.

We faced a problem with assigning a code number for the paging system that would enable accessing it from any number without using zero. We decided the quarterly rental for the service as AED80, irrespective of the number of calls made. We selected a new code beginning with 9 to make it accessible from all networks (the other services that begin with 9 are emergency, civil defense, and ambulance). The

paging system continued in use for quite a long time until it was closed down in the mid-1990s.

Naham Pager

Mubasher Pager

Pager devices

The Global System for Mobile Communications (GSM)

During mid 1980s Europe was contemplating the creation of a continental mobile network in preparation for the birth of the European Union. On September 7, 1987, a memorandum of understanding (GSM MOU) was signed by 17 operators, most of them governmental, representing 12 European countries. The aim was to develop and deploy a common cellular telephone system across Europe that could work in all European countries without having to change the number or the set. A

European group from several countries was established. Thus, came the idea of the GSM, which was an abbreviation of the French name 'Groupe Spécial Mobile' before it acquired its current universal name 'Global System for Mobile'.

In fact, the Europeans and the Japanese were the first to adopt a digital cellular phone system. The US, for its part, adopted a different system. We, in **Etisalat**, were bold enough to adopt any new technology, irrespective of its source, as long as we were convinced that it would serve our purposes.

At a GCC meeting in Kuwait in late 1987, **Etisalat** presented a paper recommending the adoption of the European GSM system, which was not yet complete by then, but there were studies that we thought we could take advantage of as we had similar requirements. Like the EU, we are a group of states brought together under the common umbrella of the Gulf Cooperation Council, and our citizens need to be able to use their cellular phones while traveling around between these countries. Some countries welcomed the idea, but others had reservations and believed that we should wait until we had a complete picture. Hence, the recommendation did not take off. Yet, we in **Etisalat** decided to go ahead unilaterally and adopt the system. When we succeeded, the others followed suit.

> "On September 7, 1987, a memorandum of understanding (GSM MOU) was signed by 17 operators, most of them governmental, representing 12 European countries"

> "At a GCC meeting in Kuwait in late 1987, Etisalat presented a paper recommending the adoption of the European GSM system"

We applied to join the memorandum of understanding with the Europeans. Australia had just signed up to the MOU as the 18th member. We came on board as the 19th. Our early signing up proved highly beneficial because the system was not yet completed and the designs were not final, which allowed us to gain in-depth knowledge of how the system worked.
There was a Japanese system available at the time, which offered better features than the GSM, but it was exclusive to Japan. Therefore, we went for the GSM because we anticipated it to have a wider circulation. Our anticipation came true!

The GSM: A Historical Preview

The birth of the GSM was by no means a smooth one. Initial thoughts were first exchanged in 1984 between France and Germany. Britain then came on board, followed by the others. There was an urgent need for setting specifications for the networks and devices. That process took a fairly long time, and it was only in 1991 that manufacturers started to deliver networks. But as the final specifications of the equipment had not been adopted yet, commissioning of the system was delayed until early 1992. The German Mannesmann was the first commercial operator of the GSM on a global scale.

Here in the UAE, we in the Emirates Telecommunication Corporation, **Etisalat** had been closely following the developments from the very beginning and we decided to be one of the first operators of the new system. Several firms were contracted to construct a 300,000-line network. By 1993, **Etisalat** officially launched the service.

"Etisalat had been closely following the developments from the very beginning and we decided to be one of the first operators of the new system"

The system was initially exclusive to audio calls; data communication had not been introduced yet. The system was dubbed the Second Generation (G2) to distinguish it from the First Generation, the analogue systems. GSM is based on the Time Division Multiple Access (TDMA) technology.

The GSM system used a high quality, cyphering code called A5. There were many versions of this code, such as A5/1 and A5/2. The former version, which was stronger than the latter, was allocated to some European countries and friendly states. We, in the UAE, obtained the first version A5/1.

"Since the system originated in Europe, manufacturing of the networks and devices remained exclusive to European suppliers for several years"

Since the system originated in Europe, manufacturing of the networks and devices remained exclusive to European suppliers for several years before it was opened up to others from outside Europe.

That was the starting point to a true trajectory towards smart mobile communication, an evolution still in its

trajectory phase and we are set to see more of it in the time ahead.

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The GSM Card: Smaller Size but Bigger Capacity

The GSM uses a card known as the 'Subscriber Identification Module' (SIM) which is inserted into the set. The earlier version of the mobile phone card was similar in size to a credit card. It contained a computer chip. Manufacturers produced sets big enough to accommodate the big sized card. It was anticipated that the card should allow for the addition of more services whenever necessary. It was later decided that there would be no need for a big card in future as the chip portion of the card was expandable in line with the expansion of the card's memory.

That was only the beginning. No one could have anticipated that the tiny sim card could be further reduced to a micro, and then to a nano size. The trend now among manufacturers is to discard the use of a physical sim card and use an e-sim instead. This new technology is based on identifying the subscriber by a code stored in his/her set. More dramatic changes are expected in the future, with subscribers able to obtain mobile services from e-stores like Apple, Google, and others.

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Mobile Second Generation G2

The GSM network was a starting point. Then a pressing need arose for data communication on the device. In 2000, the General Packet Radio Service (GPRS) service was introduced, with speeds of up to 114 kilobyte per second. Some called that system the 2.5G.

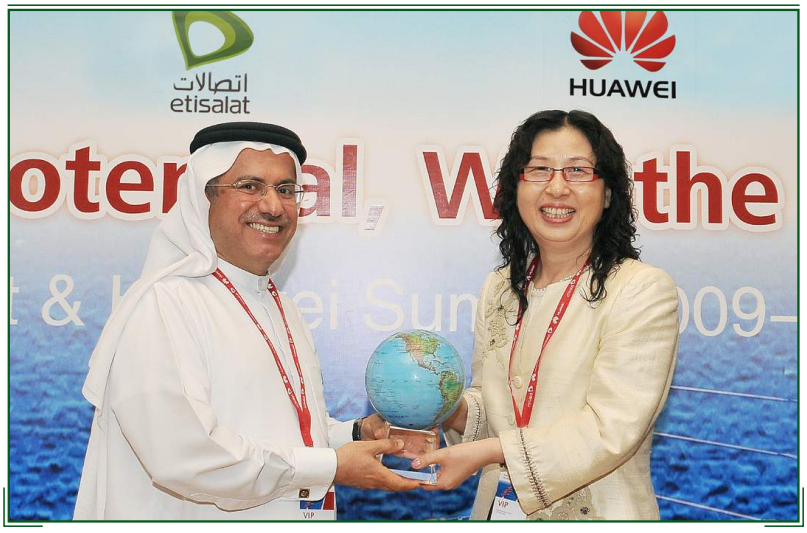
Not long after, the need for higher speeds to enable data communication became all the more evident, and that gave rise to a new technology known as Code Division Multiple Access (CDMA). In fact, that technology was not totally new as we had studied the concept at university in the 1970s, and it was being used initially in encoded government systems.
The new idea was to consolidate the TDMA and CDMA systems into one. That upgrade was first called High Speed Packet Access (HSPA), at speeds of 384 kilobytes per second. That was in 2001-2002, after which it was renamed UMTS G3 in reference to the third generation.

> No one could have anticipated that the tiny sim card could be further reduced to a micro, and then to a nano size. The trend now among manufacturers is to discard the use of a physical sim card and use an e-sim instead

G3 and Huawei Entrance into the Market

As usual, **Etisalat** was among the first to introduce G3 services in 2003, which came with much higher expectations in terms of speed, reaching up to 14.4 megabytes per second. That year saw a major change in the availability of mobile phone network suppliers with the entry of the Chinese firm Huawei into a market long monopolized by European and some US companies. **Etisalat** was the first global operator to sign a contract with Huawei, which was little known outside China at that time.

Speed continued to increase with each technology update, unleashing a new era of significant usage of mobile phones and wider usage of the Internet. Meanwhile, many new companies entered the mobile device manufacturing market while many others withdrew altogether or downscaled their presence.



with Huawei Chairperson

The G4 LTE, G5, and IOT

The year 2009 saw the introduction of the fourth generation of mobile phones, or G4 LTE, which is capable of providing speeds of up to 100 megabyte per second. More recently, some operators have started to launch the fifth generation (G5) into use, with speeds of up to 20 gigabytes per second. This development is crucial for new applications in mobile services, particularly the Internet of Things, driverless vehicles, and other developments.

> Etisalat was the first global operator to sign a contract with Huawei, which was little known outside China at that time

Regarding mobile devices, on January 9, 2007, Steve Jobs, the then Chairman of Apple, launched the first ever iPhone device. Their marketing started on June 29 of the same year in the US, and later in the same year in some European countries, and during 2008 in other countries.

We tried from the very beginning to introduce the new device to the UAE, but Apple was not convinced there was sufficient market for it here. With perseverance and close follow up, however, we eventually managed

> We tried from the very beginning to introduce the new device to the UAE, but Apple was not convinced there was sufficient market for it here

in early 2009 to convince Apple to bring the iPhone to the UAE and Saudi Arabia. But that is another story which I will come to in another part of this book.

As many new manufacturers were attracted to the UAE to benefit from having a presence in a regional hub, the UAE has become the main show case of every new development in this field.

GSM: A Snowball Success

Etisalat has always been a leader in embracing new ideas and technologies, which helped both nationals and expatriates to keep pace with modern developments.

We worked as one team. Our internal discussions never stopped. We never dismissed any idea, no matter how daring or crazy it might seem. We applied our criteria before taking any action.

Our internal meetings witnessed dynamic discussions. All doors were open, and enthusiasm was the dominant mood; everyone was motivated to make the best contribution. By 1990s, the GSM became our main focus. We concentrated our efforts on how to further improve it and embrace new technology updates to maintain the lead.

We launched this service in 1993, and we were surprised to see the demand for it exceeding all our expectations. The first network was launched with a capacity of 300,000 lines, a huge start incomparable to our initial estimates of 5,000, then 20,000, and then 60,000 lines.

We were faced with the need to recruit more engineers to meet the mounting demand. It was a challenge because East Asian countries, particularly Pakistan and India, where we usually recruited from, did not have engineers with the appropriate specialization at that time.
We presented the matter to our Executive Committee, with a recommendation to recruit fresh graduates from Egypt and Jordan, where there were plenty of engineering graduates to select from. We placed recruitment advertisements in both countries and scores of candidates applied, most of them were fresh Egyptian graduates. We saw that as an advantage because fresh graduates who had not practiced different technologies were more likely to learn our work style quickly.

In addition to UAE national engineers those young graduates formed the core of our mobile network development team in the UAE. Some of them later worked with us in our expansion program in Saudi Arabia, Egypt, and other countries. We offered

> "Etisalat has always been a leader in embracing new ideas and technologies, which helped both nationals and expatriates to keep pace with modern developments"

> "The expansion of our GSM services was phenomenal, positioning the UAE among the top-tier countries in the world in terms of the number of lines to population ratio"

them an attractive package, which included a satisfying salary and accommodation.

The expansion of our GSM services was phenomenal, positioning the UAE among the top-tier countries in the world in terms of the number of lines to population ratio (it is almost two lines per person now), and in terms of the number of minutes used by subscriber per day, and the average number of minutes for a subscriber at the peak hour. The latter is an important criterion for the design of networks capable of coping with demand.

In terms of usage, the UAE was among the top performers, scoring five to ten times better than some developed countries.

SMS

In 1995, after the cellular phone system went into operation, many neighboring countries, such as Kuwait, Bahrain, Oman, Qatar, and Lebanon, joined the GSM.

The SMS idea was born, which meant “writing short text messages on the mobile phone”. Initially it had to be in English only, not more than 80 letters, and it had to be entered letter by letter. Another problem was that not all the letters were available on the phone keyboard, so you had

to push the button several times to get the letter you wanted.

The cost of the SMS system was estimated at around AED15 million. Some of us believed that investment was infeasible and that the service was not in demand. However, another group was in favor of introducing the service to customers. Kuwait had introduced the service before us but with little success initially.

The final decision was in favor of launching the service! The response exceeded our expectations, which tempted us to double the capacity in order to meet the mounting demand. Today, SMS is a regular feature of the cellular phone network; however, it has been overtaken by other, more improved, services.

The number of transmitted SMS was in excess of one million messages per day few months after introduction of the service. Those figures might sound normal today, but they were above the benchmarks at that time.

All this progress has been based on a clear vision: embracing new technologies as quickly as possible, to maintain the lead in meeting the varying demands of the community. We owe a good part of this progress to the actions of those who were at the helm of responsibility. Through their vision, daring action and readiness to take accountability for failure, they made a great contribution.

As a true metropolis, playing host to people of diverse ethnic and cultural backgrounds, the UAE provided an

"Progress has been based on a clear vision: embracing new technologies as quickly as possible, to maintain the lead in meeting the varying demands of the community"

"The quality of service yielded not only high customer satisfaction but also commercial success for the Corporation"

ideal market for our launched services. People were always attracted to our services, either because they were familiar with them elsewhere in the world or were attracted to something new.

The quality of service yielded not only high customer satisfaction but also commercial success for the Corporation. The UAE ranks among the world's top in terms of the Average Revenue per User (ARPU), a standard measure of the telephone line revenue, which varies from one country and operator to another. During my tenure, our ARPU ranged between $30-40 per month, compared to $15 in Europe, and less than $5 in Africa and many Asian countries.

Opening Up the Market of Mobile Hardware and Data

We used to import modems and fax machines. At one point, though, we thought we should consider opening the market to the private sector. I, personally, oversaw a study into the profitability of those appliances, which showed that we were not making any profit out of them. Hence, we decided to open the door to the private sector, and we were the first in the region to do so. That proved to be a prudent decision as it triggered strong business and competition among the various firms to provide the best at a competitive price.

Blackberry & iPhone: A Turning Point in Cellular Phone Evolution; Nokia: a Short-Lived Success

The launch of the iPhone sales campaign in June 2007, first in the US and later in some European countries, ushered in a new era in the development of cellular phones. Millions of iPhone sets were sold in record time. The new device was regarded as a revolution in the cellular phone world as it combined multiple functions, including cellular phone, multi-media files operator, digital camera, Internet device, and others. The iPhone went viral in the US and across the world. As I said, we were monitoring burgeoning technology developments everywhere, let alone an invention like this, which achieved record success. But it was a different story with Apple.

Like the iPhone, the Blackberry is a smart phone with the function of receiving and sending emails through a reliable, secure system wherever a cellular communication network is available. It also allows

instant communication between the service users at no extra cost, besides sending and receiving SMS, sending fax messages, Internet browsing, and others. Those two appliances represented a major milestone in the history of telecommunications, as sending text messages on the Internet was vital before the spread of modern applications. Both the iPhone and the Blackberry first entered the UAE market during my tenure in **Etisalat** and I am proud to have played a role in this achievement, which has had a strong positive impact on the local society as well as on our corporate revenues.

Blackberry: From the US and Europe to the UAE

At first, the Blackberry business was concentrated in the US and Europe. There were only a few companies that had Blackberry subscriptions in the UAE. Those were a few hundreds, mainly from Europe and Singapore. We had lengthy internal discussions about this. A question came up: why can't we have Blackberry available here? The answer was because the Blackberry executives did not see sufficient market in the UAE.

Why not meet with them? That's what happened.

On the sidelines of the Mobile World Congress (MWC), a major exhibition held every year in Barcelona to showcase the latest in mobile phone technology and hardware, I met with a Blackberry top executive and

expressed our interest in introducing Blackberry to the UAE. He showed no enthusiasm. The UAE market, he believed, was too small for a company the size of Blackberry, and he did not expect to solicit sufficient demand to make their presence feasible.

That was understandable. It would not make sense to forsake big markets in favor of a market of 500 or 1,000 pieces by their estimate. But we had different estimates, and after a long discussion in the presence of many **Etisalat** top management, I was able to convince him. He agreed on condition that we guaranty to distribute 10,000 sets in the first year. He thought that was beyond our reach. To his surprise, we accepted the terms and made the arrangements for the service to commence at the earliest.

Back in the UAE, I ordered the Marketing and Sales team to set up a plan for the installation of 15,000, not only 10,000 lines.

Everyone worked hard and we managed to sell 20,000 lines in the initial year.

One of the major features of Blackberry is the messaging, as it was originally designed for data communication and email system for corporates. in the UAE the device and the service attracted many individuals, particularly the youth for the use of instant messaging. That experience was the inspiration behind the launch of WhatsApp. This demonstrates that the market can intervene to redirect a product into an application different from the one for which it was

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> The Blackberry launch was a tremendous success. We managed to sell half a million devices in just a few years

originally intended for.

The Blackberry launch was a tremendous success. We managed to sell half a million devices in just a few years. That was a huge number for a country the size of the UAE. The President of Blackberry visited us several times and, on each visit, we celebrated the launch of new products and services at prestigious venues, such as the Armani Hotel in Burj Khalifa in Dubai. The UAE soon became the first launch station for every new service by Blackberry, thus our country's status effectively transformed from "non-Blackberry market" to "a major Blackberry market."

There was hardly a manager in the UAE who did not have a Blackberry set. Besides, huge numbers of the young generation used it extensively for communicating messages, in both one-to-one and group settings. It was an excellent tool for business and instant messaging. However, as often happens, another company came in to take the lead in the market and push Blackberry to the sidelines. Clearly, Blackberry's demise was largely because new products with superior features dominated the market.

Story of the iPhone

When the iPhone was newly introduced, the Apple executives unwieldly refused to open new markets except where they thought there were high potentials. They reportedly refused to meet the president of a leading international communications company who travelled to the USA

specifically for that purpose. This was not an isolated incident; they had turned down many similar meeting requests.

In the face of the great popularity of the iPhone, we decided to get in touch with Apple. We sent a team from our Marketing Department to the US for this purpose. They were told that Apple would only consider a deal if we agreed to buy one million devices in one year, at $500 each, i.e. with a total cost of $500 million! Additionally, the contractual terms of the deal were final, not subject to any modification whatsoever. It was a 'take it or leave it' offer.

The message was clear. Our negotiations hit a deadlock. Nevertheless, I made the following suggestion to the marketing team: Let them give us the exclusive right to distribute iPhone through **Etisalat** in the UAE, and through Mobily in Saudi Arabia.

That offer was accepted.

We put together a comprehensive plan that took account of all contingencies. If worst came to worst, we would still have the Dubai market. People from many countries would come to Dubai to buy many things including mobile phones. So, no problem with going for it.

I presented a recommendation to the Board of Directors to allocate $500 million. Despite the huge amount and the high risk, the Board endorsed it.

The devices arrived in the UAE and distribution started through **Etisalat** in the UAE and Mobily in

> People from across the region came to the UAE to procure the iPhone. We quickly ran out of stock and Apple could not provide the one million pieces, which was the agreed first year quota as per the contract

Saudi Arabia. It was a big success. We established ourselves as the first operator to introduce the iPhone to the region.

People from across the region came to the UAE to procure the iPhone. We quickly ran out of stock and Apple could not provide the one million pieces, which was the agreed first year quota as per the contract. But since the contract provided for no default clause against Apple, we had no option but to wait for a resupply from them. I must salute the skillful marketing team in **Etisalat** who thoughtfully put together some incentive packages- like installment payments, data packages, etc. - to trigger sales. It was a phenomenal success. We managed to maintain our leading position in introducing state-of-the-art technology, providing convenient services to customers, and achieving high returns for shareholders. Above all, we learned new lessons for the future!

Nokia: a Success Story but…

Being at the helm of a company the size of **Etisalat** was a huge challenge, yet it was also a rare and exciting opportunity to encounter some unique experiences and to learn important lessons in management and in life.

One of those unique experiences was following closely the trajectory of Nokia, from a firm with the lion's share in the mobile market to its sharp downfall.

In the pre-GSM period, Nokia had fancy products operating on the Total Access Communication System (TACS). Taking advantage of the spread of the GSM system, Nokia put out superb quality products that became highly popular. The Nokia mobile was the top brand in the market, thanks to a unique combination of features, notably its user-friendly menu and convenient uses.

We were on good terms with Nokia. Their CEO visited us at **Etisalat**, and we were among the first countries to embrace their new products. Unfortunately, Nokia failed to keep a close eye on the development trends in the sector. As Nokia President confessed in his last speech, "We didn't do anything wrong, but somehow, we lost". Indeed, Nokia did not do anything wrong inside their business, however the world around them changed too fast.

> "In a rapidly evolving sector like telecommunication, to stay put is a synonym for slow death"

Staying Connected with World Developments

> "Those who rest on their laurels will only drift away in the rapid evolution of technology and telecommunication?"

In a rapidly evolving sector like telecommunication,

to stay put is a synonym for slow death. Armed with this conviction, we in **Etisalat** were very keen to keep an eye on the future. We often invited international economics and technology experts to share their insights and future visions with our executives and teams. Through such interactive settings, we kept abreast of future trends in the world economy and learnt from the experience of international companies.

A good example here is the Walkman produced by Sony.

Although Sony has great technical know-how, being one of the leading technology companies in - the world, which owns specialized music and film content producing firms and world-class research centers, it did not take the Walkman concept any further. In contrast, Apple went further and produced the iPod, which turned out to be far better than the Walkman. This demonstrates how important it is for companies to keep developing new ideas. Those who rest on their laurels will only drift away in the rapid evolution of technology and telecommunication.

Creativity can always make a difference. For instance, music used to be sold in the form of albums containing a number of songs recorded on a cassette or compact disc (CD). Those albums were sold in the West for around $10. Apple introduced a different method, which allowed a user to buy only one song for $1 and upload it to all his/her Apple devices. Also, while electronic programs were being sold on compact discs at high prices, Apple offered them at cheap prices or free of charge through their online Appstore. As a result, their users increased many folds.

The same approach was successfully used by other companies, such as Google.

Another tactic used by those and other companies was to offer the content free of charge along with attractive advertisements. This explains why

major companies, such as YouTube, with a market value of tens or hundreds of billions of dollars, are offering their services free of charge.

The struggle for survival has taken a new turn. While major companies used to survive for decades in the past, today we see major companies vanish for failure to keep pace with change or to prepare for that change early enough.

I said in a different section of this book that Nokia has come back in a new shape. It has brought together several telecommunication manufacturers into one entity to create a durable group. It has also discarded Symbian, its mobile phone operating system, and adopted Android instead. Blackberry did the same.
The same thing applies to telecommunications companies, who are now adopting new models to help them survive and continue to attract customers. The old model, which relies on phone call income, can no longer hold out, particularly with the advent of IP based voice service, which uses numerous applications that cannot be blocked. In addition, more and more countries adopted the so-called Net Neutrality, which prevents discrimination in the quality of service based on different services. It is clear that the world is heading toward a new era of struggle for acquiring the largest possible portion of wealth, power, and influence.

“The struggle for survival has taken a new turn. While major companies used to survive for decades in the past, today we see major companies vanish for failure to keep pace with change or to prepare for that change early enough”

“This sustained evolution of the business model is crucial for continuity and coping with change”

In the past, manufacturers used to develop operating software designed specifically for their appliances. When Apple developed its appliances, it also developed a special operating system and fitted it with special tools to protect it against hacking and abuse. As a result, Apple handsets stood out as highly reliable in functionality and in protecting customers data.

On the other hand, Google designed and produced an open operating system, called Android, to help device manufacturers design phones, tablets, and other products. The result was a boom in production of devices that operate on Google's Android system. Google capitalized tremendously on this and established an online market for applications operating on its system, to work with devices manufactured by many other companies, including Google itself.

This sustained evolution of the business model is crucial for continuity and coping with change.

Chapter Four

The Internet and Data Communication

From the Telegram to Data Communication

The telegram was the common means of written communication, which preceded telephone calls. I believe that the Telegram is the first data sent from one location to another. Telegram was initiated in mid-1830 when Samuel Morse invented the telegraph system. By the end of that decade, the first telegraph system using Morse Code was put into operation and in 1844 Morse inaugurated the first commercial line by sending the first cable from the Capitol in Washington to a railway station in the neighboring city of Baltimore. Later, after several futile trials, the first transatlantic telegraph cable was successfully extended between the US and Ireland.

In the Arabian Gulf, the British Government, represented by its Administration in India, constructed in 1864 the first submarine cable running from the city of Al-Faw in Iraq, through Bushehr in Iran and Musandam in Oman all the way to the city of Gwadar in today's Pakistan. Further additions were later fitted into the cable, which was originally used purely for

"In the arabian gulf the british government, constructed in 1864 the first submarine cable running from the city of Al-Faw in Iraq, through Bushehr in Iran and Musandam in Oman all the way to the city of Gwadar in today's Pakistan"

telegrams. From Iraq, the cable connected to other lines through Turkey to Europe. The British Administration in India built another cable from Bombay to the Yemeni city of Eden and on to Suez, Egypt. Work on this cable started in early 1870.

Later, wireless transmitters were used to send telegrams. Until recently, telegrams remained in use in most countries and are still used in certain places of the world.

Here in the UAE, telegraph services were available at designated counters in every Emirtel/ **Etisalat** branch. The Telegram officer would receive the text from the client and send it after counting the words, which was the basis for computing the charge; the more words the higher the charge.

Many years later, a new form of telegram (sending written words) was introduced: data communication, which replaced the telegram.

Before elaborating on data communication, I want to mention that its measuring unit, the bit, is the smallest unit used, where one letter equals 8 bits (1 byte = 8 bits). The b/s symbol is used for measuring the speed of transmission, while the byte is used for measuring the storage size of letters, words, and data in general.

Telex as a Documenting Tool

The telex, a system for sending and receiving written texts, played an important role in business transactions starting from the 1950s. The

service was administered through a special switch connected to other switches within the state and abroad, using various communication lines. The telex operator typed the message on a perforated ribbon, which served as data storage. The text was typed on a typewriter like machine, and the perforated ribbon was kept as documentation which could be placed on the machine to get a printout at any time.

The telex was a means of documenting written correspondence between one point and another. Here in the Emirates, we used to have around 1000 lines and grew to more than 2,000 telex lines, which was a large number compared to other countries at the time. The telex speed was 50 bits per second.

> **The telex, a system for sending and receiving written texts, played an important role in business transactions starting from the 1950s**

Late Shaikh Rashid bin Saeed Almaktoum
viewing new equipment during one of his visits

The Arabic Telex

By the mid-1980s, the telex service had to be upgraded to cope with the mounting demand for telecommunications services, triggered by expanding businesses. The German company Siemens was the first to produce an Arabic version telex machine, followed by some French companies. I learned that the person who Arabized the telex was a Dr. Ghassan Kubbah, an Iraqi engineer who worked in Abu Dhabi National Oil Company (ADNOC). Although telex including the Arabic version filled a big gap in the market, telex could not cope with the rapid demand for faster higher speed messages and was soon outpaced by new technologies.

One of those new technologies was the facsimile (fax), which quickly positioned itself as an indispensable communication tool for businesses and professional entities. The fax machine is composed of a scanner, a thermal printer, and a built-in modem. Later, some new additions were used such as ink jetting and laser printing. The machine is linked to a dedicated phone line through which messages are sent and received.

Speaking of the fax, I remember the Arab Telecommunication Union, which was established in Rabat in 1967 as an Arab League organization, adopted the word "طبصلة" (tebsala) as the Arabic name for fax. It is a blend of two words "Tebq" and "Alasl" which translates into "exact copy of the original". That name could not survive for long because blending is not as common in Arabic as it is in English.

The above were just the beginning of a relentless trajectory.

Data Communication: Three Stages

Back to data communication, it is important to note that the UAE has always been a regional and international front-runner in embracing telecommunications technology. We have done that through three major stages.

Stage One: Dial-up Modem

In the 1970s, when demand for data communication was still burgeoning, a modem with a speed of 300 bits per second was used. Speed was upgraded in the 1980s to 1200 b/s 1.2 Kb/s (kilobits per second) before it was doubled to 2.4 kb/s. The modem speed jumped to 14.4 kb/s in the early 1990s and later to 33.6 kb/s. At that point it was thought that the modem speed could not go up any further. However, it propelled to 56 kilobyte per second in 1996. As the speed went higher, new applications emerged.

Use of the dial-up modem was initially exclusive to the corporate level. Among individuals, a new type

In the 1970s, when demand for data communication was still burgeoning, a modem with a speed of 300 bits per second was used. Speed was upgraded in the 1980s to 1200 b/s 1.2 Kb/s (kilobits per second) before it was doubled to 2.4 kb/s

of chat network known as the Bulletin Board Service (BBS) emerged. It was created and managed by enthusiasts in different countries. As the US was the leader in this field, several companies emerged there that provided diverse information and better-quality services. One of those was CompuServe, which was the main network from the 1980s up to the early 1990s, when America On Line (AOL) became operational. The number of users of this service from the UAE was very limited because accessing it required a modem and making an international call to the US.

Stage Two: Data Communication Switches and X25 Protocol

By the late 1980s, **Etisalat** signed a contract for the establishment of a Packet Switched Digital Network (PSDN) using the so-called X25 Protocol. That facility provided us with links to countries offering that service. Access to the network was simply by a local call or a dedicated network-linked line for corporate use.

That network provided connectivity with the world at prices much lower

Participating in Barcelona GSM world conference

than international calls. As a result, a new era of wide usage of the email and the internet began. Although there were some concerns that this new development would have a negative impact on our telex revenues, we went ahead with adopting the new technology. Fortunately, the high-level usage offset the drop in telex revenues. The initial network was connected to the US through a data line at a speed of 2 megabits per second, which was later upgraded to 8 megabits per second.

Stage Three: The Internet

It became evident that the international capacities of the PSDN would not meet the mounting demand and that it was vital to have sufficient speeds. Hence, we decided to procure a speed of 155 megabits per second, which sounded huge at the time. The cost of that capacity from the UAE via Britain to the US, through submarine cables, was more than $12 million. Today, it costs only a few hundred.

With dial-up modem becoming increasingly unable to cope with the mounting demand for higher speeds and better-quality connectivity, we adopted a new technology known as the Digital Subscriber Line (DSL). This technology allows stable speeds up to 10 megabit per second, but it depends on the quality of the telephone line and the distance between the

subscriber's location and the switch. It provided a remarkable leap in the quality of Internet services, as it could be used for new applications, such as video and interactive gaming, that required high connection speeds. That technology was subsequently upgraded to provide higher speeds and wider outreach. It is still in use in many regions in countries where no better technologies are available.

The X25 switch soon gave way to the Internet Protocol (IP), which was developed to embrace all forms of data, such as messaging, audio, video, and other applications.

But the race with technology will never come to an end. We have unfettered determination to stay at the top and provide state-of-the-art technology in support of the UAE Government's vision and of our customers who are always eager to acquire the best regardless of the cost.

During group strategy forum

Search for Reliability and Best of the Range

The need for higher speeds and reliability gave birth to Fiber Optics (FO), which is tackled under “A Well-Founded Futuristic Vision”. I will revisit it when I come to talk about cables.

Born in the Bell Labs, Fiber Optics is based on transmitting light digital pulses through one or more fiber optic cables. We have been using it since the 1980s to connect intra-city and inter-city switches.

It had many advantages, notably high capacity and

> “Born in the Bell Labs, Fiber Optics is based on transmitting light digital pulses through one or more fiber optic cables. We have been using it since the 1980s to connect intra-city and inter-city switches”

with children during summer activities

> “we decided it was time to adopt the ‘Fiber to the Home’ (FTTH) technology”

reliability, but it was more expensive than the other technologies at that time.

A major swing took place by the turn of the century, which saw a drop in the cost, coupled with an increase in both capacity and reliability. At that point we decided it was time to adopt the 'Fiber to the Home' (FTTH) technology.

Many FTTH technologies emerged. One of those was the 'Fiber to the Curb', where the fiber optic cables are extended to an area close to the house or to among the building's entrance, and then copper cables are used to extend the line into the house or the office.

We were the first to adopt the technology we deemed to be the best, i.e. the Fiber to the house/office through Gigabit Passive Optical Network (GPON).

The GPON has many advantages including high capacity, expandability and possibility of upgrading the internet speed for any subscriber. It proved to be the best technology and was subsequently adopted by many other countries.

Our decision to adopt that technology was taken after extensive discussions within **Etisalat** as well as during our Board meetings. There were some reservations about the significant investment to be committed. Eventually, however, we reached consensus to go ahead. That made the UAE one of the first countries in the world to acquire high-speed internet service, where no less than 95% of the houses are connected by fiber optic network, including all cities and residential clusters in villages and remote areas.

At the same time, it was important to link the UAE with the global internet hubs through terrestrial and submarine cables as well as through satellites

links.

As the internet centers were initially concentrated in the US, we connected with them, on the west side, by cables running across the Red Sea to Egypt, Europe, and on to the east coast of the US and Canada. On the east side, we connected with them through Singapore, Japan, and on to the US western coast. That provided us with high reliability in case of breakdowns.

I remember a disruption happened in several cables in the Mediterranean in 2006, which had a significant negative impact on the internet capacity for the countries that did not have alternative routes on the eastern side. I received a call from the Egyptian Minister of Telecommunications asking us to provide them with alternative route through the use our capacities in our eastern cables. We were able to help them out until the Mediterranean cables were restored. Moreover, we established connections with other internet centers in Europe, the Far East, and some Arab countries, to guard against service disruption and to help enhance the service efficiency, especially as the internet became used in all aspects of life.

> "Our decision to adopt that technology was taken after extensive discussions within Etisalat as well as during our Board meetings."

> "it was important to link the UAE with the global internet hubs through terrestrial and submarine cables as well as through satellites links"

The Internet for Government, Banking, Recreational Services - and More to come

The internet has become an indispensable tool for businesses, banking and government services. We, in the UAE, take pride in the fact that we were among the first countries to introduce on-line services, which gave citizens and expatriates direct access to government services quickly, efficiently, and without any mediators. For individuals, the internet has changed their lifestyle, through a number of applications including Apple, Google and social media. The share value of the companies that provide these services has skyrocketed.

This development has had a major impact on traditional media, like television and radio, newspapers and magazines, etc. A phone with internet connection is now used to obtain government and banking services, getting news updates, watching videos and live events. Interestingly, the phone's basic function, i.e. telephone calls, has now declined in importance as an income source, to the point that many telephone companies are now offering it free of charge as part of their packages. The theory of the "death of distance" has now become a reality. Interestingly, India and China, where about half of the world's population

lives, had a very low number of landlines compared to the population. That rate increased only after the introduction of cellular phones. In many countries, the vast majority of the internet users are cellular phone subscribers. In China, this percentage is as high as 95%.

At the same time, there have been changes in the strategies of telecommunication companies, that have an important store of what is now known as 'Big Data'. We might well see some of these companies diversify their activities to focus on financial or banking transactions, education, health, or others.

With all the progress witnessed so far, this is just the beginning. In the very near future, we are set to see these smart appliances do other functions, such as medical examinations, and unlimited other options.

"The internet has become an indispensable tool for businesses, banking and government services. We, in the UAE, take pride in the fact that we were among the first countries to introduce on-line services, which gave citizens and expatriates direct access to goveenment services"

Chapter Five

The Microwave, the Cables and Specialized Companies

While the future holds unlimited potential for the evolution of data transmission, this hinges on the ability to ensure safe and sustainable transfer of data without disruptions or breakdowns. Surely, building telecommunication networks is one of the infrastructure pillars for nations and an indicator of progress.

We, in the UAE, and particularly in **Etisalat**, being the authority that was in charge before the creation of the Telecommunications Regulatory Authority, recognized at an early stage the importance of building a modern telecommunications infrastructure. We embarked on building a network of microwave systems and cables covering all parts of the UAE, and providing sufficient capacity for all services, and high reliability to ensure continuity of services at all times and circumstances. That helped us greatly in expanding, diversifying, and developing our services.

Before giving an elaborate account of the evolution of cables in the UAE, I would like to mention that the two major types of cables are Coaxial Cables and Fiber Optic Cables. Usage of the former type declined dramatically in the face of phenomenal progress in fiber optic technologies. I must also mention that our utilization of cables increased as a result of expansion of our needs and our quest for higher capacity and quality. The advanced cable network has enabled us

"We, in the UAE, and particularly in Etisalat recognized at an early stage the importance of building a modern telecommunications infrastructure"

to provide excellent services and foray into new areas, such as E-Marine, and cable TV networks.

Microwave and Ducting

Telephone switches are connected by cables and/or wireless connections. The latter operate by the microwave technology, using specific ranges for communication between two or more points. This technology, which is easy to install by fixing equipment at two or more points and is capable of transmitting and receiving a large capacity of telephone lines or data. It is also important for ensuring sufficient reliability in case of a disruption in the cable services.

The problem with this technology is that it uses radio waves that could be interfered with by other sources, or influenced by environmental conditions, such as humidity and temperature, particularly in the Arabian Gulf region, which is renowned for sharp variations in humidity and temperature levels. This phenomenon is called “ducting”.

Perhaps our senior citizens remember the days when TV was first introduced to the region. We used to receive the TV transmission from remote stations such as Kuwait and Dhahran in Saudi Arabia’s eastern province. I remember one occasion in the late 1960s when I was able

to receive, from the comfort of our house in Ras Al Khaimah, the broadcast of an Iraqi TV station based in Basra. Reception was best in summer, when humidity was generally high, and it declined in the other months when the humidity dropped.

It was necessary to expand the application of microwaves, a technology that uses parts of the spectrum in order to serve the growing need of connectivity for various services such as TV broadcasting, cellular phone, and other telecommunication services.
Accordingly, in the mid-1980s, we signed deals with the Japanese company NEC and the Italian company Italtel to provide a large network of microwave. NEC was responsible for connection works between Dubai, Abu Dhabi, and some northern Emirates, while the Italtel built a network to link Abu Dhabi's islands and offshore fields, including the islands of Das and Delma. Shortly after launching the system, we encountered difficulties in obtaining the aspired quality of service. Studies conducted in collaboration with specialized centers pointed to a natural phenomenon known as 'ducting' as the cause of the disturbance. Like the Caribbean, the Arabian Gulf region is exposed to ducting, which disrupts the signal due to a surge in humidity levels at certain times of the year and sharp variations in temperature between day and night. To counter that problem, we worked with the two firms to come up with creative solutions to ensure faultless

and accurate operation of the system. That collective effort culminated in solutions that ensured quality service in all climatic conditions.

Coaxial Cables

The other connecting media is cable. The technology in use in the 1980s and before was the coaxial cable. These are cables with one or more metallic core, encircled by an insulator, which is, in turn, encircled by a metallic mesh similar to, though much bigger than, the cables used to connect the satellite dish and the receiver. Most of these are fitted with an external steel mesh for further protection. Signals transmitted by these types of cables needed signal boosting through repeater stations built several kilometers apart, which added to the cost of construction, operation and maintenance.

Coaxial cables worked generally on analogue technology. In later stages some were fitted with equipment that allowed digital transmission. Coaxial cables served many needs for connectivity while providing the high reliability needed for telecom networks. However, generally, they had limited capacity.

This was the type of cables in use in the eighties, along with the microwave. They played an instrumental role in linking parts of the country and

providing the reliability necessary for ensuring quality service.

Fiber Optics

After the coaxial cable, a new technology utilizing fiber optics was introduced. Fiber optic cables are composed of strands of glass fibers, each 100 microns in diameter. A micron is one millionth of a meter, and its diameter is smaller than a hair

This technology developed tremendously during the 1980s and 1990s and continues to evolve rapidly. It has huge capacity to transmit large amounts of data. A unique result of using this technology, is that the need for transmission repeaters has diminished significantly. From the late 1980s when signal repeaters were needed every 30-50 kilometers, the distance between repeaters doubled during the few subsequent years. Today, there are cables that operate without repeaters for several thousand kilometers. Also, the capacity of those cables grew many folds and their speed recorded 150 terabytes per second in early 2018.

> Fiber optic technology developed tremendously during the 1980s and 1990s and continues to evolve rapidly

> Another characteristic of the fiber optic cable is that its strands of glass fiber are so light that thousands of them can well be placed in one cable

Another characteristic of the fiber optic cable is that its strands of glass fiber are so light that thousands of them can well be placed in one cable, which makes fiber optic cables cheaper, and the cost of data communication through them lower, compared with copper cables.

Submarine cables used to depend on coaxial cables to link one region and another or to link several countries. They used signal repeaters every 30-40 kilometers through connection to power sources.

Improvement in technology enabled expanded usage of fiber optics.

Initially we used Fiber Optic cables extensively for connecting between switches within the UAE cities and between cities, as well as for linking some of the mobile stations operating with the TACS system.

My colleagues and I were very keen to keep abreast with advancements in telecommunication technology by following professional and industry publications, including industry periodicals and manufacturers' literature. None of these publications was in Arabic as the majority were published in the US and Europe.

Differences between Coaxial Submarine Cables and Land Cables

Coaxial submarine cables are different from land cables in many

respects. Thanks to careful selection of materials and usage of high-quality repeaters. Submarine cables can work for at least 25 years without interruption. They may be coated with gold to prevent corrosion and are designed with optimal protection for the different terrain they pass through, whether coastal areas or deep sea.

The exterior of submarine cable is usually covered with layers of galvanized steel mesh as protection against damage. In certain cases, particularly in shallow waters or areas of high activity (e.g. fishing), sections of the cables are buried for added protection. Less reinforcement materials are used in deep waters where the impact is less likely.

Also, because the cables run in sea beds that are subject to expansion or shrinkage in the case of earthquake activity, extra lengths are usually allocated to allow cables to expand without causing disruption. This provides extra protection, although it is not always effective, particularly at times of strong quakes.

> things changed significantly after the introduction of fiber optic technologies. The number of repeaters was reduced to a few or none

Fiber optics Cable

Coaxial Cable

Obviously, things changed significantly after the introduction of fiber optic technologies. The number of repeaters was reduced to a few or none; and with the FO cables becoming much smaller in diameter, compared to marine cables, it became possible to include a large number of cables in one external case. That resulted, not only in significant cost cuts, but also in expanding the cables' capacity, thanks to the Wave Length Division Multiplexing (WDM) technology, which allows use of multiple light wavelengths or colors bands within the same fiber.

Submarine Cables

Let me share with you some important facts about submarine cables. The laying of submarine cables has several requirements, including a landing station; a building constructed according to certain specifications, in an area close enough to the sea coast to allow extension of the submarine cables to it. On the onshore side, one or more land cables are extended to this station to enable delivery of service into the city or the country.

The landing station contains appropriate equipment to feed power to the submarine cables, which may extend hundreds or thousands of kilometers into the sea. Usually DC current is used for this purpose.

The coast side of the station includes the point of contact between the land and the water, up to depths beyond the reach of ship berthing equipment or other

marine activities. Cables are usually buried in these places or fortified by external reinforcement materials to minimize any possible damage. The cable route is designated as an area where berthing and other marine activities are prohibited. The marine maps used by shipping companies are marked with the cable routes and the no-berthing zones.

> The first submarine cable from Abu Dhabi to Qatar and Bahrain was laid in the early 1980

The longer section of the cables is the one that runs along the seabed. The ocean bottom topography is a combination of mountains, hills, and even volcanoes. It is, therefore, necessary to conduct a survey to identify the best route for the cables. Ocean depths vary considerably. The area from Fujairah to Bombay in India, for instance, reaches 5,000 meters (5 km) in depth. In other areas of the world, the depth can reach up to 15 km. Such depths require the use of special technology to ensure that the cables do not get crushed by the high pressure deep down.

> Specially equipped ships are used for laying and servicing those Submarine cables

In the Arabian Gulf, however, the depth is generally 50 meters, with the deepest point no more than 90 meters. In the years that followed the laying of cables in the Arabian Gulf, many disruptions happened, and significant parts of the cables had to be buried. Those included the cables linking some of the UAE islands and those between Bahrain and Kuwait.

The Submarine Cables Era in the UAE

The first submarine cable from Abu Dhabi to Qatar and Bahrain was laid in the early 1980s. Subsequently, another cable was extended between Fujairah and Karachi, and a third one was laid from Fujairah to Mumbai. Later on, more cables were laid between the UAE and Arabian Gulf states, including Kuwait as well as many other international cables connecting UAE and the rest of the world.

Specially equipped ships are used for laying and servicing those cables. As cables have to be buried in certain locations and some need to be encircled with reinforcement meshes. Naturally, they need special treatment to suit the particular submarine ecosystem.

We sought the assistance of several consultants during the planning and executing stages. One of those consultants was Swedtel, an affiliate of the Swedish telecommunications company Televerket, the incumbent telecom operator in the eighties. Renowned for its state-of-the-art technology, the Swedish firm recommended that we made provisions for adding more cables to the route in the future. And, as cables might be displaced by earthquakes, which was a probability given the huge depth, the consultants suggested that we leave extra lengths that would enable the cable to expand without being disrupted.

The need for a specialized company

Due to the complexity associated with the laying and maintenance of submarine cables, specialized international companies were set up to undertake these functions. Despite the high costs and hi-tech involved, we, in **Etisalat**, decided to venture into this domain and established a dedicated company under the name of E-Marine.

By their nature, the cables designed for working in deep seas require that certain spare lengths of them have to be stored in round tanks filled with water to keep them on standby for use in case of any sudden disruption of any cable. For this purpose, a cable depot has to be specially designed and built in a suitable location by the sea.

The cable ships are custom-built and equipped for this purpose. In some cases, some existing ships undergo major restructuring and remodeling to enable them to conduct this work. Each cable ship is equipped with a round tank to which the cable is transferred in the initial stage at the manufacturing facility. Then, the cable is laid in the appropriate place. Ships are prone to sea

“The cables designed for working in deep seas require that certain spare lengths of them have to be stored in round tanks filled with water to keep them on standby for use in case of any sudden disruption of any cable”

turbulence, particularly at high seas and in tough climatic conditions, which may cause the cable to break while it is being laid or maintained. To guard against this, special dynamic positioning technology-based motors are used to stabilize the ship. This is also necessary when repairing damaged cables, where the defective section is cut off and replaced with a new one before putting it back into the sea.

With time, the name of E-Marine has grown popular in the region, with the majority of neighboring countries and across the region turning to our company for the laying and maintenance of their cables or the international cables passing through the region. The company had to add more ships to its fleet to meet the rising demand and provide guaranteed service within short lead-times.

The Birth of E-Marine

After installing the first few submarine cables, we had an accident that caused disruption in one of the cables. We sought the assistance of a specialized cable repair ship and it happened that all of them were either in Singapore or in the Mediterranean and would take a long time to reach the required location, and at a very high cost. All the relevant expenses are borne by the client, and the charge is calculated from the moment the cable ship operator is notified of the damage until it is effectively repaired. Obviously, if that takes too long it could cost millions of dollars.

Besides, any delay in fixing the damaged cable would entail loss of time and a negative impact on the quality of service to customers and would result in the loss of significant revenue at a time when the UAE boasted one of the highest volumes in international calls.
During internal discussions of this issue, our Board Chairman H. E. Mohammed Saeed Al Mulla posed an interesting question: why shouldn't we have our own cable ship? That question, or rather suggestion intrigued me immensely. Here was a brand-new specialization that needed in-depth knowledge. The cost would be high, over $100 million, but we had the money and it was the best way to protect our networks and expand our cables and services.

"Our Board Chairman H. E. Mohammed Saeed Al Mulla posed an interesting question: why shouldn't we have our own cable ship"

That suggestion was quickly endorsed as brilliant vision.

The next step was to find a consultant with good experience in ship design and building. A contract was signed with a ship building company. It took two to three years to build a single ship. The first ship arrived at the UAE right after Iraq's invasion of Kuwait in 1990, a time of high tension in the region.

"The first ship arrived at the UAE right after Iraq's invasion of Kuwait in 1990, a time of high tension in the region"

Cable Ship "Etisalat"

The first ship arrived, and we decided to name it the Cable Ship '**Etisalat**'. We had to build a ship docking station; a special storage facility called a Cable Depot to keep spare cables ready for use in case of any emergency. The cable depot had to be spacious enough to accommodate those cables laid in round tanks. The cables were rolled in circles 30 to 40 meters in diameter and had to be kept immersed in water so that they would not dry up and fracture. It was evident that we needed to have special storage facilities on the coastline close enough for the ship to upload the cables. Hence, we built a special berth and a storage for cables inside Abu Dhabi Port.

One stormy day, the General Manger Ali Al Owais directed me to inform the team working on the cable ship to carry out a drill for cable laying and maintenance under those tough climatic conditions, to ensure the preparedness of our team and cable ship to work in such circumstances.

The drill went quite well despite the adverse conditions. Our team members, composed of both Emiratis and expatriates, all showed a high sense of responsibility.

That training proved highly useful in dealing with real time incidents that were to happen later. One such incident happened off the city of Fujairah when a ship's anchor fell off, causing damage to one of the cables. In such cases, specialized companies are called in to locate the anchor and pull it out. Then we had to conduct the repairs in stormy weather conditions.

Another incident happened when several cables off Mumbai shore were

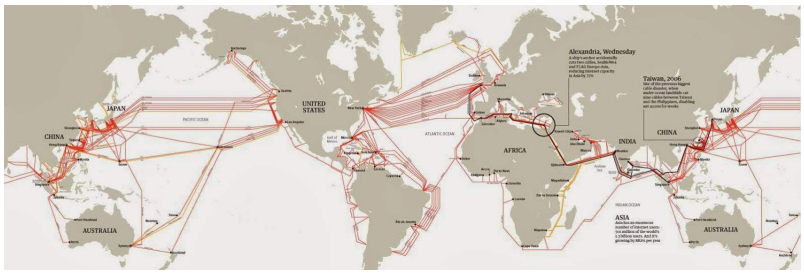
broken by strong storms. I still remember that incident, as it coincided with the assassination of Rajeev Gandhi in May 1991. It was a tough job, but the team was up to the challenge and was able to repair the damage, in a clear testimony to the prudence of the vision behind establishing the E-marine company.

Our entry into the submarine cable laying business brought about significant changes in the global map of undersea cables. Previously, we were away from the main cable lines from the East (e.g. Singapore and India) bound for Europe via the Red Sea. Today, we are well established in it. In fact, Fujairah has grown to

Cable Ship Niwah

Cable Ship Etisalat

Cable ship Maram



Submarine cables world map

> Our entry into the submarine cable laying business brought about significant changes in the global map of undersea cables

> E-Marine's successes have evoked memories of the glorious past, when our ancestors dominated the sea with sailboats

become an important hub for global submarine cables.

Later on, when any of the existing cables running through the region were due for service e-Marine became the preferred option for all regional clients as it was conveniently available in the region, so it bagged most of the contracts, including monthly retainers to attend to emergency breakdowns.

After signing UAE-Pakistan Submarine Cable Agreement

E-Marine's fleet grew as new ships, such as "Om Al Anbar", "Muram", and "Athba", gradually came into service. Not only did e-Marine expand its cable services beyond the region to the UK and US, it also diversified into laying and maintaining power cables associated with oil fields in the Gulf, particularly in the UAE and Saudi Arabia. It has constantly been expanding the scope of its services in the region, taking advantage of its geographical location.
Several submarine cable networks, such as Fiber-Optic Link Around the Globe (FLAG), and SEA-ME-WE, used e-Marine services.

E-Marine's successes have evoked memories of the glorious past, when

our ancestors dominated the sea with sailboats. This reminds me of the legacy of Ahmad Ibn Majid, or 'The Lion of the Sea', who left behind a substantial wealth of literature now regarded as invaluable references in the history of marine navigation.

Through e-Marine, the Emiratis went back to the sea, armed with state-of-the-art technology and knowledge, to score new records and perpetuate their ancestors' legacy.

"At a later stage, when fiber optic cable network was extended to residences, 'e-Vision and 'e-Life', which provide TV channels and high-speed internet services, were merged in triple play service with fixed telephone service"

Etisalat Affiliates: e-Vision and e-Life

In the early 1990s, **Etisalat** created a dedicated unit for the provision of cable TV services. That was only possible with the strong support from the Government as it aimed at having the latest technologies adopted in the UAE. From the other side **Etisalat** was able to achieve this goal as it had the necessary infrastructure to deliver a high-quality service.

Initially we used a hybrid network (Hybrid Fiber Coax),

taking advantage of the fiber optic cables that had already reached many parts of the UAE and so we were able to deliver the cable TV service to every household with excellent broadcasting quality. At the same time, that spared us the unwelcome scenes of satellite dishes arbitrarily scattered on rooftops and balconies.

We launched a new company. We called it e-Vision; a name obviously inspired by **Etisalat**. The new company was able to build one of the biggest state-of-the-art networks with superb quality broadcasting and the ability to capture a great number of channels that no one satellite dish could provide. Some of those stations were offered as part of free packages, while others were part of paid services. Thus, **Etisalat** was able to cater to the versatile needs of its customers, with a combination of public and custom-made packages. An Indian national, for instance, could have a special package of preferred Indian channels in addition to the standard package. There were Arab channels, and many others dedicated for drama series, western programs, films, sports, music, etc.

At a later stage, when fiber optic cable network was extended to residences, 'e-Vision and 'e-Life', which provide TV channels and high-speed internet services, were merged in triple play service with fixed telephone service.
To procure a good number of TV channels from different satellites, we created a 'Dish Farm' within the earth stations zone in Tawi Alsaman, near Dhaid, and created multi-route fiber optic cable lines to connect it with different UAE cities.
Etisalat's pursuit of excellence and better service has never stopped.

E-Junior: UAE Kids' Favorite Channel

Encouraged by the success of e-Vision, we thought of expanding our UAE family-focused services by building a new channel dedicated to the children in the UAE.

By 2001, we launched e-Junior as the first UAE's children TV channel, targeting kids up to 14 years old. The channel content is a mix of educational, fun, adventure and fantasy programs. At first, we launched it as two separate Arabic and English channels, then merged them into one channel in 2004, giving viewers the option of selecting their preferred language from the audio button on the remote control.

In 2009, as part of our celebration of e-Junior's 8thanniversary, we launched a new creative update allowing viewers to watch the programs through four color-coded options: the blue for kids 0–5 years, the green for animation dedicated to 6-14 year olds, the orange for live action, and the red for movies.

E-Junior was true to its selected slogan: the Emirati kids' favorite channel!

Serials and Games Production

The production of serials and games was part and parcel of our expansion strategy. During the first years, we produced some in-house serials and procured the rest from production companies. We then decided to look into the viability of producing programs, documentaries, and kids' serials in-house, but I left before the relevant studies were finalized. I am certain, though, that **Etisalat** will always continue to weigh up all options and select the best ones.

Chapter Six

Human Resources Wealth and the Optimum Development Methods

The telecommunication sector depends, largely, upon the human element, due to the fast development in applied technologies and the vital importance of acquiring accurate and precise knowledge of the systems, and the methods of handling these systems. Telecommunications services are vital services and there is no room for complacency in making these systems operate uninterruptedly under all conditions. Any interruption for any reason affects the trustworthiness and reliability of the services.

Hence, the greatest concern of **Etisalat** was to attract and sustain national talent and develop their capabilities by the provision of the necessary qualifications and training. **Etisalat** has spared no effort to create a conducive work environment for the Emirati workforce to maintain stability and high rates of employee' retention. On the other hand, these

with group of **Etisalat** employees

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Of course, the company also relied on foreign workers from Europe and Asia, as well as Arab countries. These engineers and administrators have carried out the tasks entrusted to them with great responsibility and care, and have kept the wheel of growth running, in both the services and technologies sectors, and achieved their set goals.

Initially, with the dire need for freshly graduated engineers, **Etisalat** was fortunate enough to have an appropriate number of Arab youths available in the UAE, who could serve as the core human capital team for the nascent telecommunication company. Those Arab and foreign engineers worked hand-in-hand with a group of Emiratis, who had acquired the necessary experience and knowledge through previous work experience with local companies operating in this sector.

It is important to note here that in the early 1980s, with the change in senior management, the Corporation was compelled to consider recruiting new engineers who were capable of handling the newly introduced advanced technologies. Thus, a group of new graduate Arab engineers, who were, at the time, living with their families in the UAE, were recruited. Among this group were, as I recall now, some Iraqi engineers, such as Abdel Wahab Whayeb, who later emigrated to Japan; Dr. Saad Al-Adhami, who emigrated to Australia; and Safa Abbas. From Jordan and Palestine, I remember Walid Irshaid, the brothers Zaki and Sameer Sa'adeh, Marwan Zawaideh and several others. Those engineers helped drive the rapid growth and achieve the targeted goals of the Corporation.

During that period, we worked with experts from Arab countries, Japan, India, Europe and other Arab countries, who worked in all sectors of

the Corporation. I would like to mention some of them here, such as Mr. Salem bin Saleh of Tunisia, who was then the Director of Administration and HR Affairs; Abdullah Al Zu'bi of Saudi Arabia, the Director of HR; Zameer Al Husn Burney of Pakistan, the Director of Financial Affairs; and Saeed Obeid Al Jarwan, the Marketing Manager. This is, in addition, to scores of national engineers and administrators who worked in various branches all over the UAE, including Abdullah Al-Mihrezi, the Director of the Abu Dhabi branch, and Mohammed Sultan Al-Qadi, the Director of Administration and Personnel at the Abu Dhabi branch, who was later transferred to become the Director of Ras Al Khaimah branch to replace me when I was transferred to Abu Dhabi in 1984. Others include Mohammed Rafi Al Mulla, the Director of the Dubai branch; Saeed Majid Al Shamsi, the Director of the Al Ain branch; Ibrahim Askar, the Director of the

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With **Etisalat** senior management at an exhibition

West Coast branch in Sharjah; Eid Khalfan, the Director of the East Coast branch in Fujairah; and Yousuf Amiri, the Director of the Commercial Services sector at the Abu Dhabi branch. I sincerely apologize for not being able to mention others who worked with us as one team, with the sole aim of achieving success and excellence under the wise supervision of the General Manager Mr. Ali Al Owais.

This was the beginning. As the work progressed and the need for new recruits increased, we started to move on two core directions: the first was to provide academic and professional training to distinguished UAE students. In this regard, we started by selecting groups of high school graduates to study abroad, in addition to the establishment of **Etisalat** College. The second direction was to attract citizens to work in many fields where complexity and importance were increasingly gaining momentum. This coincided with a substantial increase in the number of jobseekers among Emirati nationals. Hence, **Etisalat** came to the conclusion that recruiting them would be beneficial for the company and for the individuals, and would immensely contribute to realizing the national goals set by our leadership, focusing on developing and empowering a UAE national workforce as a driving force for national growth.

We invited applications from secondary school graduates who did not have the opportunity to pursue a university education. A remarkable number of jobseekers applied, and the selected candidates were enrolled in specially tailored training programs, covering a host of technical and administrative areas. The training was conducted at the newly established **Etisalat** Academy. Upon graduation, the trainees were employed in their relevant areas of training.

With a large number of our young people coming from the Northern Emirates, and since the majority of jobs were available in Abu Dhabi and Dubai, **Etisalat** decided to provide them with suitable allowances,

including accommodation. Their allowances were increased to compensate for the additional costs they incurred. These incentives attracted a larger number of applicants and helped create a favorable work environment.

At the same time, **Etisalat** offered employment opportunities for graduates of some university majors, whose educational background did not fit into the mainstream jobs in **Etisalat**. They were taken on board to work in non-technical jobs sectors, such as customer service, sales, marketing and administrative work, after successfully completing specialized management courses, organized by **Etisalat**, to qualify them for work in the required fields. Those qualifying specialized programs have benefited a large number of UAE females, who eventually worked side by side with their fellow male colleagues. They spared no effort to render excellent performances and positively contributed to keep the UAE name and that of **Etisalat** high among the distinguished ranks of excellence.

It is important to note that with the great expansion and diversification of services, at the beginning of the 1990s, the number of available Emirati engineers was considerably insufficient, and there was a lack of skilled workers and engineers in the local labor market, so we had to look for new sources. I came up with a proposal to recruit fresh graduates from Egypt and Jordan. It was my belief that the choice of

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fresh graduates, instead of experienced engineers and technicians, would be more beneficial for the Corporation, because **Etisalat** would be able to inculcate its own ethos through carefully designed training programs that optimally satisfied the essential requirements of the company. My proposal was endorsed. Employment applications were received from both countries and a carefully scrutinized group of applicants was chosen. Those engineers succeeded outstandingly in accomplishing the targeted goals of **Etisalat** and in developing the necessary expertise for the Company to keep up its rapid development and growth.

Development of National Workforce Elements

The development of a UAE national workforce in the telecommunications sector was one of the most important issues that we focused on, because we believed that this vital sector required an efficient and competent workforce who were capable of living up to the challenges to implement both short- and long-term goals.

We sometimes came across the claim that UAE youth tended to avoid technical disciplines or those that required demanding work, and that the majority of them were more inclined to join literary academic programs or the so-called easy study programs. It is undeniable that there are some young Emiratis who refrain from joining highly specialized technical programs, but their number is quite negligible, compared to the huge

At 4 million lines achievement celebration 2005

With Barcelona Football Club Chairman

number of young Emirati men and women who love to stand up to challenges and hard work when provided with a conducive environment that helps bring out their best creative spirit and drive for excellence. Throughout my work for **Etisalat**, I have come across many talented and audacious young Emiratis, of whom I am very proud, as they keep our heads raised

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high, as we say in the UAE. They are to be found, not only in **Etisalat** but in so many other of its subsidiary companies, and I am happy to say that a large number of **Etisalat** senior leaders hold this positive view with me.

Etisalat Scholarships to Study Abroad

In the early 1980s, an urgent need arose to recruit Emirati engineers capable of keeping up with the rapid developments taking shape in this sector. In fact, the shortage was immense, despite the step taken to attract staff from Europe, America and some Arab countries, but we always failed to find the exact specializations we were looking for. During discussions on this issue with the Executive Committee, we suggested selecting a number of talented secondary school graduates to be offered scholarships to study abroad.

The Executive Committee assigned me the task of following up this issue by scrutinizing the high school graduates and selecting appropriate candidates from the official list of successful secondary school exam results. The first group of successful candidates nominated for scholarships was dispatched to study in Britain and the United States of America in 1983. Later, we dropped the option of sending our students to Britain but kept sending them to the United States.

We continued to pay special attention to our students who were sent abroad, and we monitored them carefully throughout their academic

studies. I personally kept visiting them regularly to make sure that they were on the right track. However, one of the most nagging hurdles was the fact that we were unable to tailor the curriculum of study to meet our specific needs at **Etisalat**. Some of the students were actually pursuing irrelevant study programs and some faced difficulties in concentrating in their studies due to the huge geographical distance from home.

That period coincided with the rise of political Islam movements which were active in brainwashing Arab students studying in foreign countries, particularly in the United States. I still remember clearly the case of one of the brilliant students who was sent to study in the United States. We harbored great hopes for him and his other colleagues, to excel in their studies and return home to serve **Etisalat** and their country with the advanced knowledge and expertise they acquired. Unfortunately, he apparently fell into the snare of Islamic fundamentalists, and simply disappeared into thin air. Thanks to our relentless tracking of him, and at the unceasing follow up of his father, we learned that he ended up in Afghanistan to join those who were lured and beguiled in the name of religion! I pursued the matter with his father, who kept contacting me throughout this ordeal, until he managed to bring his son home to the UAE. To our disdainful surprise, he managed to stealthily sneak back to Afghanistan where he eventually was killed.

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of telecommunications and the rapid introduction of new services and products, **Etisalat** decided to establish a college within the UAE. This college was to be entirely dedicated to the field of telecommunications, to meet the growing needs of the company and to ensure that graduates pursued carefully tailored study programs to obtain the qualifications necessary for their work.

Etisalat College

H.E. Mohamed Saeed Al Mulla, Minister of Telecommunications and Chairman of **Etisalat** at that time came up with the genius idea of establishing a college specialized in offering telecommunications engineering programs, to be affiliated to **Etisalat** Corporation. The ultimate goal embraced by this locally based college, which was to be exclusive to UAE nationals, would be to meet all **Etisalat**'s human resources needs, thus sparing us the trouble of sending candidates abroad to study.

It was agreed that the proposed college would be located in the city of Sharjah, whose government was generous enough to allocate a suitable plot of land adjacent to the **Etisalat** building in Sharjah. We proceeded with preparing the designs and building plans with the help of a number of consultants specialized in designing university premises with all appropriate annexes, including laboratories. classrooms and halls fitted with special equipment and student residence halls, to accommodate students from other cities.

It is worth mentioning here that UAE University, based in Al Ain, was the only national university available at the time. UAE University offered various disciplines and programs, including engineering and electronics, but not any specialized program in the field of telecommunications. The same period witnessed the birth of the Higher Colleges of Technology (HCT) in the UAE. These are specialized multi-campus colleges offering higher diploma programs for post-secondary students. Eventually, the three-year diploma programs were upgraded to four-year bachelor's degree programs. I had the honor to serve as the HCT's chancellor from 2013 to 2018.

> "We finally succeeded in accomplishing our planned goal of establishing Etisalat College. Its graduates are now serving their company and homeland to the best of their abilities"

The proposal of H.E. Mohamed Saeed Al Mulla was adopted, and the Board of Directors entrusted me with the task of following up the implementation of the proposed college, in addition to my other work obligations.

We were in dire need of engineers who were specialized in electronic and telecommunications engineering. After prioritizing our requirements and the completion of the building construction, we sought the help of an internationally recognized educational institution to help us set up the academic programs to be offered to our prospective students. We prepared a study to determine the most renowned universities in the fields of telecommunications engineering. This study led to us choosing Bradford University in the UK

as our partner, where we entrusted it to design the required teaching programs, with English as the language of instruction, together with providing us with qualified university lecturers to develop and deliver the required curricula.

In addition to specialization courses, we decided to include general requirement courses, such as Arabic language to improve the linguistic competence and skills of our students and to train them on the basics of writing reports in correct Arabic. We also decided to include a course on Islamic studies to inculcate the appropriate teachings of Islam, including the ethics of dealing with people coming from different parts of the world, considering the fact that we wanted them to become the future leaders in **Etisalat**.

In order to achieve this, we approached the Office of the Cultural Attaché in the UAE Embassy in the Arab Republic of Egypt, to announce an opening for a lecturer in Arabic and Islamic studies. I was involved in the interviews to select the suitable candidate for this job. I insisted on selecting a graduate of Al-Azhar University, a prestigious Islamic University known for its moderate non-fundamental position and its keen interest in disseminating the righteous ethics of Islamic and Arab culture. We were quite lucky to have chosen the right person for this task. I used to meet him regularly and asked him to encourage his students to embrace the righteous Islamic behavior in dealing with others, bearing in mind the openness and tolerance of the Emirati community in relating to other cultures.

We finally succeeded in accomplishing our planned goal of establishing **Etisalat** College. Its graduates are now serving their company and homeland to the best of their abilities. Whenever I pop into one of

them, I thank God for enabling us to take part in the development of the UAE people, to enable them to serve their country and themselves.

University of Bradford, our Academic Partner

An agreement was concluded with the University of Bradford, England. I paid an official visit to the university, accompanied by Mr. Abdulla al-Zu'bi, the then Director of the Human Resources in **Etisalat** at that time. We scrutinized their existing curricula, the teaching methods adopted and all other aspects pertaining to the educational process. For our part, we briefed the university authorities on our needs and the ways in which they could be useful to us. By the end of the visit, we concluded a contract with the University of Bradford to manage the newly established **Etisalat** College. As per to this contract, they sent a group of their faculty who suggested select syllabuses for the chosen courses. On our part, we recruited other faculty members in accordance with the academic requirements and regulations of the college.

> "Admission to the new college was exclusively restricted to national students who had successfully finished their secondary education, in the science section"

Admission to the new college was exclusively restricted to national students who had successfully finished their secondary education, in the science section, and scored not less than 70% in the final general secondary school examination, in addition to passing the admission test to be administered by the **Etisalat** college, prior to acceptance into the program. We received a gratifying surprise when the first batch of applicants included a large number of students who scored the highest marks in the final general secondary school certificate examination. The available seats were distributed equally to students from different emirates, to enable each student, on graduation, to serve his own domicile area within the different regions of the UAE. This policy pattern continued for a while, then we decided to admit only the best students, that is the cream of the cream.

In fact, to be able to offer our students fine-tuned academic BSc honor engineering programs that meet quality academic conditions and regulations proved to be a big step and a qualitative leap. The degree offered is the most distinguished in this category of education, in addition to the fact that the British curriculum is usually more difficult than the curricula of American universities in some academic disciplines. **Etisalat** College is also distinguished by its specialized laboratories, equipped with the necessary equipment for training and programs in the fields of telecommunications and electronics.

We started with two academic departments;

telecommunications and electronics engineering. Later on, we introduced other programs such as software and others. The number of graduates ranged between 30 and 40 annually. After a certain period, we no longer needed the University of Bradford to manage the college, and it was replaced by local administrators under the umbrella of the UAE

Ministry of Higher Education, the official UAE body overseeing universities and institutes of higher education which sets strict academic standards. The academic accreditation to be granted by the accreditation commission, affiliated to the Ministry of Higher Education, is mandatory for the operation of all tertiary education programs. The term of study ranges between four to five years, where some students need a preparatory recessional year.

The college succeeded in satisfying the accreditation requirements of the Ministry of Higher Education. A team from the Ministry visited the college campus from time to time, to scrutinize the curricula and the details of the academic programs offered and to check on the available facilities such as laboratories, the nature of the equipment available, the methods of education embraced and the system of academic assessment of students' performance.

As part of the monitoring process, and in order to maintain the high quality of the educational level, we regularly invited independent foreign experts to inspect the college during and after the end of semester exams, for the purpose of evaluating the academic performance of our students. They usually interviewed select samples of students and faculty members. At the end of their visit, the independent experts would submit their reports directly to the senior management of **Etisalat**. These reports normally contained their

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findings and recommendations with regards to identifying shortcomings, if any, and ways of avoiding these shortcomings. Their reports could also suggest new curricula or courses to be adopted in order to keep pace with the development in the curricula of the disciplines offered by the College. This succinct scrutiny has helped in the steady progress of the college, which resulted in it obtaining an outstanding quality performance.

Quality Community Service offered by **Etisalat** College

Etisalat College can be viewed as a distinguished contribution from **Etisalat** to the UAE community, particularly to the Emirati college graduates who worked for the company. Some of our graduates opted not to work for **Etisalat**, and upon obtaining our prestigious degree in various fields of their choice, they started their professional career elsewhere. Although one of the admission conditions was to sign a pledge to work for **Etisalat** on completing the prescribed course of study in the college, we overlooked this condition in the case of those graduates who opted otherwise.

Etisalat College graduates have had a huge positive impact in various professional sectors within the UAE, thanks to the distinguished education and training they received. They have excelled in various

fields, including the Telecommunications Regulatory Authority, the police, the military and companies specialized in electronics, as well as in du; the other telecommunications operators within the UAE, in addition to other private companies owned and run by some of our graduates. The College contributed to the development of young Emirati engineers, and was exemplary in its commitment and seriousness in qualifying the best engineers in the state.

It is worth mentioning that in terms of the vision embraced by **Etisalat** College, **Etisalat** has envisaged not only graduating distinguished Emirati engineers but also adopted a very important motivational method: distinguished graduates were offered scholarships for post graduate studies in prestigious universities abroad, leading to masters and PhD degrees, in several countries such as Britain, Australia and the United States of America. In addition to obtaining the most advanced qualification they would eventually obtain, the selected candidates also received lucrative salaries, exceeding those of senior engineers. On their return home, these scholars are expected to join the teaching staff at the college. Indeed, **Etisalat** has sent several groups of graduate students abroad. They have excelled in their specialization studies and on returning home, they held the best positions in the state. We, in **Etisalat**, are very proud of the fact that one of those graduates, Dr. Ahmed Belhoul, has become Minister of State for Higher Education.

> **Etisalat College served as the nucleus core of the newly established Khalifa University, which eventually developed into one of the best and most prestigious universities in the region**

On the merger of the **Etisalat** College with Khalifa University of Science and Technology, most of those super qualified scholars moved to Khalifa University. The above is but a glimpse of how our college succeeded in achieving this component of its adopted mission; that is serving the UAE community.

Etisalat College as the Nucleus of Khalifa University

Late in 2005, the government of Abu Dhabi envisaged the need to build a new national university, to be based in Abu Dhabi. This coincided with the realization on our part that we had managed to qualify enough engineers through **Etisalat** College and its training programs. Other UAE universities had also started to offer academic programs in telecommunications, like the UAE University and the Higher Colleges of Technology. We came to the conclusion that the educational services contributed through our **Etisalat** College were no longer necessary.

The Abu Dhabi Government instructed us to start the process of integrating **Etisalat** College within the proposed university, under the name of Khalifa University for Science, Technology and Research. **Etisalat** College served as the nucleus core of the newly established Khalifa University, which eventually developed into one of the best and most prestigious universities

in the region, with specialization in many academic disciplines, most notably engineering. It continues to produce the best engineers and specialized certificate holders in some of the most difficult and advanced fields, such as aviation and space engineering, nuclear science, telecommunications and other modern scientific and technical branches.

This was the end of the **Etisalat** College era, which had played a significant role in the development of the UAE community.

But that was not the sole initiative of the company.

Etisalat has always been committed to playing its designated role in social responsibility through the implementation of various initiatives, such as **Etisalat** Academy with its various programs, and the housing initiative among others.

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> We built a huge training center with several classrooms, halls, and laboratories. We made it imperative on our technical suppliers to provide the required facilities to supply the training classrooms with identical equipment to those actually used in Etisalat workplaces

Etisalat Academy: An Embodiment of Development of Citizens' Capacities

Founded in 1986, **Etisalat** Academy was

originally a sort of a small training center located in Dubai. At that time, we realized that it was important to have a specialized center for training our national and foreign employees working in the company. **Etisalat** had embraced a policy whereby all staff must attend annual training courses, either in their area of competence or in other areas recommended by the concerned department to which the employee belonged. The goal was that each employee must attend at least six training days per year.

The training sessions were conducted in different ways, which underlined the need to establish an independent training center. The Government of Dubai had always supported such initiatives, and in this particular instance a sizeable plot of land was allotted to the purpose of building the sought training center in Dubai. It was located on Sheikh Mohammed Bin Zayed Road as that linked all of the Emirates. At that time, it was considered a secluded area but now it falls at the very heart of Dubai and is considered to be an excellent location.

We built a huge training center with several classrooms, halls, and laboratories. We made it imperative on our technical suppliers to provide the required facilities to supply the training classrooms with identical equipment to those actually used in **Etisalat** workplaces, whereby the training sessions would emulate real-life situations as those experienced when carrying out our business operations. The center also included student accommodation for both male and female trainees coming from different parts of the UAE. Our training is offered to both national and expatriate employees working for **Etisalat**. The last stage prior to launching the center, was that of choosing a suitable name for the center, and I was one of those engaged in the selection process. As usual, after evaluating several options, we agreed to call it "**Etisalat** Academy". Finally, **Etisalat** Academy was launched and the training operations started with three categories of trainees: **Etisalat** employees who were supposed to

take at least six days training per year; fresh Emirati university degree holders who majored in various literary subjects and were looking for employment, and the third category included Emirati youth who had completed secondary school but who did not join university education or specialize in any field. We took these young people on board to train them for fieldwork operations as technicians on the ground, to carry out all the outdoor fieldwork, such as installing telephone or fax equipment, mobile towers, antennas or cables. There was a great need for such jobs, especially in Abu Dhabi and Dubai, so the academy strived to provide the most needed national staff, qualified to fill these jobs.

The establishment of **Etisalat** Academy came as a qualitative phase in the campaign of Emiratization of jobs and empowerment of Emirati youth. We offered them attractive salaries to join **Etisalat** for training and work. And they did not let us down. We feel really proud when one comes across some of our youth working in the streets, carrying out essential jobs, or when you answer the front door only to find out it was an Emirati young man sent to fix or install an **Etisalat** device or service. Some of these technicians moved later to working with other entities and now holding senior positions in government, military and police agencies.

Etisalat Academy continues to graduate highly qualified, knowledgeable and well-trained

> "Social responsibility has always been one of the core objectives for Etisalat. This social commitment is a contribution to the Government's development agenda, on the one hand, and is one of the best investments in society and represents a significant contribution to its development and growth in the right direction, on the other hand"

professionals, pursuant to the highest standards, to start successful professional careers. The Academy activities were expanded to new areas, such as the provision of special training courses, particularly tailored to meet the requirements of special audiences or employees from various government sector entities. The Academy also provides services to oil companies and other major companies, through contracting specialized international bodies to offer such courses to ensure state-of-the-art training services. I would close this part by pointing out that **Etisalat** Academy has played its role in serving the community, and we are proud that we achieved the highest percentage of Emiratization at that time, compared to other entities within UAE.

Social Responsibility;
a Successful Investment on National Potential

Social responsibility has always been one of the core objectives for **Etisalat**. This social commitment is a contribution to the Government's development agenda, on the one hand, and is one of the best investments in society and represents a significant contribution to its development and growth in the right direction, on the other hand.

At the beginning, we faced many challenges in the UAE, as we were an emerging country with many urgently needed requirements, most notably

providing proper training facilities to qualify Emiratis to cope with modern technologies, and, then, providing decently rewarding employment opportunities for them. This was a major responsibility to be shared by many sectors within the state. Hence, the UAE Government has always encouraged the creation of more jobs and capacity building programs for young Emiratis in this field. To fulfill these requirements, **Etisalat** has worked on several levels relevant to the issue of social responsibility, most notably:

• Emiratization;

• Providing academic and professional training through **Etisalat** College and offering scholarships for studying abroad;

• Establishing **Etisalat** Academy to play the significant role mentioned earlier;

• Participating in the National Housing & Marriage Funds; and

• Sponsoring sports and cultural activities.

As for the question of Emiratization, during the period of my work for **Etisalat**, the total number of staff was about 8,000 employees. The percentage of Emiratis was around 40% of the staff. The percentage of Emiratis in senior staff positions was around 60%. Interestingly enough, the percentage of Emirati females was high, which is in perfect harmony with the national policy of equal gender opportunities. From the very beginnings of **Etisalat**, we employed several Emirati female

engineers. I remember from the early days that sometimes, in the event of system failures, the female engineer in charge of the switches would be summoned at any time of the night, like any other engineer, to carry out her professional duties in the best way. Thank Allah, we succeeded in empowering our daughters and developed their capabilities to the fullest potential. They have shown courage and audacity and lived up to the level of responsibility vested upon them.

Housing and Marriage Fund Initiative

Towards the end of the 1980s, our Board Chairman, HE Mohamed Saeed Al-Mulla, informed us that the government was planning to create a housing fund, and that he suggested to the Council of Ministers that **Etisalat** should substantially contribute to that fund.

Later on, under the direction of the late Sheikh Zayed, we received a directive to participate in a fund to encourage marriage among young Emiratis. **Etisalat** had to contribute to that fund by deducting a percentage off its profits to finance it. According to the plan, any young couple who wanted to get married should be awarded a fixed marriage allowance to help them in this crucial step. This was intended to facilitate their way to establish their new families.

The total sum of deductions amounted to 50% of **Etisalat** profits, known as royalty rights, which was paid to the UAE Federal Government. The other

50% of the profits were distributed to the shareholders after deducting the necessary reserves. These funds amounted to huge sums of money as the total annual profits exceeded AED10 billion.

In conclusion, **Etisalat** succeeded in taking young Emirati people before they finished their secondary school level, provided them with excellent schooling and later on with highly rewarding employment opportunities. In addition to the government funds, **Etisalat** also established a policy for providing its Emirati employees with decent housing. This housing project allowed **Etisalat** to directly, and not through commercial banks, grant Emirati employees interest-free housing loans, against the guarantee of their salaries, to be paid back over a period extending from 10 to 15 years. I was personally among those who benefited from these loans at the beginning of my professional career.

> **Etisalat was active in sponsoring various sport and cultural activities whenever invited in various fields in all over the country.**

With HH Shaikh Mohamed Bin Rashid Al Maktoum during Gitex

Someone related a funny interpretation to our housing and marriage facilitation policies by saying that: "You help young Emirati people to build their houses through grants from the housing fund and help them to get married through the marriage allowance from the Marriage Fund. You must be hoping that they will beget more children, thus you will ensure that you will have more subscribers for your services."

Sponsorship of Cultural and Sport Activities

Sponsorship activities was one form of realizing our social responsibility obligations. **Etisalat** was active in sponsoring various sport and cultural activities whenever invited in various fields in all over the country. However, such engagement was always carried out in full compliance with the recognized standards of our corporation, with regards to the aspects of organization, accuracy and objective of each activity.

Some of these activities, to mention but a few, included sponsoring the UAE Pro-League, and the UAE President's Football Cup and other sporting activities. The sponsorship commitments were not limited to local activities but extended to involve other important and useful regional and international events, particularly in the domain of sports in Egypt, Saudi Arabia and other countries, through our companies in these countries, taking into full consideration the unique cultural individuality of these societies and the popularity of these sporting activities. On the international level, **Etisalat** also entered into sponsorship contracts

with Barcelona Football Club for becoming the official international telecom partner of the Club. I personally signed this sponsorship agreement with the President of the Club, which was maintained for many years.

On the cultural arena, we were also present through our sponsorship of the Booker Prize event, in coordination with the Emirates Foundation for Youth Development. I served as a member of the Foundation's Board of Trustees for many years. The Foundation Board consists of many senior sheikhs and ministers. **Etisalat** sponsored the Arabic version of the Booker Award vested upon the best novels written in Arabic. I remember that one of the very first novels that won the prize was titled "Azazeel", by the Egyptian novelist Yousuf Zaidan, which stirred a heated debate in 2009. We also sponsored the Children's Book Competition in collaboration with the Culture Department in Sharjah. His Highness, Sheikh Sultan Al-Qassimi, Ruler of Sharjah himself honored the occasion by presenting the award to the winner. The event represented a major cultural event in light of the importance of children's literature, which had been greatly neglected, or at least, not given enough attention previously. We have had several activities in many cultural and other fields that cannot be enumerated here, but the mere fact indicates that **Etisalat** has always been unfalteringly committed to delivering in the area of social responsibility.

"On the cultural arena, we were also present through our sponsorship of the Booker Prize event, in coordination with the Emirates Foundation for Youth Development"

Chapter Seven

Satellites: A Tale of Success Launched from UAE into the Vast Space

Overlap between the Beginnings of the Satellite Era and my Professional Career

My story with satellites started at an early phase of my professional career, as I was granted the opportunity to attend a three-month specialized training course on satellites in Japan in 1978. We Emiratis, following the steps of our great leaders, thanks to Allah, entertain huge ambitions and always yearn for a brighter future and look forward for the best in every aspect. This ambition applies to all sectors, particularly telecommunication, which has witnessed radical, if not revolutionary, changes, in the process of provision of state-of-the-art services. Telecommunications has transformed the entire world into a small village whose inhabitants speak to each other and see each other, opening new horizons in the way people communicate wherever they are.

It is important here to mention that the United Arab Emirates was the first Arab country to establish a space agency; announced in 2014. It is also among the first

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"United Arab Emirates was the first Arab country to establish a space agency"

countries to use satellite telecommunications to serve mankind. The first satellite station in Jebel Ali in Dubai was established in the first half of the 1970s. It was preceded by an earlier station, which was using the Tropo-Scattering communication technique that utilizes the troposphere, one of the atmosphere layers, to transmit communication between different reception points.

To simplify the scientific definition, the troposphere is the nearest atmospheric layer to the earth, which includes above ground heights, including the highest mountain peaks, comprising the first layer of the atmosphere and the closest to the earth. It rises about 8 km in the poles and 18 km above the equator, and it is the densest layer containing 90% of the atmospheric mass. Radio waves operating at 2 GHz are reflected across this layer, so that two areas can be linked to each other within 300 to 500 kilometers. We installed a very large rectangular dish directed at this layer. This enabled us to be connected to the State of Bahrain, with a capacity of not more than 200 telephone lines. This capacity fluctuated between summer and winter, depending on the weather changes. This technology was mainly used in military communications, which is preferable for that purpose, compared to using microwave technology that needs repeater stations every 30/40 km. I do not know exactly when this system was first established in the UAE, but it was certainly in the sixties and it was used for the delivery of calls and telegrams from and to Bahrain, and from there to other countries in the world.

This was the first system installed in Jebel Ali area to link the UAE with the world at large, long before the region's growth and prosperity. The first earth station in the UAE was then built on the same site, before the establishment of the Emirates Telecommunications Corporation. The site was then transformed into a hub for communication between UAE cities and with the world in general. I also remember that a limited-capacity

radio system was operated between Jebel Ali and Dibba, exploiting a mountain corridor in the area to transmit signals using very high frequencies (VHF).

At a later stage, and prior to the incorporation of the Ras Al Khaimah Telecommunications Authority of Ras Al-Khaimah into **Emirtel**, a satellite station was built in Ras Al Khaimah. It was manufactured by the German company Siemens, which, I believe, has manufactured only 4 satellite earth stations worldwide. After the establishment of the Jebel Ali and Ras Al Khaimah satellite stations, work began at the Abu Dhabi earth station in the early 1980s. The Arabsat satellite earth station was established later in the mid-1980s, in addition to a maritime telecommunications satellite (Inmarsat) earth station, which was designed to link ships and steamers to the telecommunications network.

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> "Satellites usually use several orbits around the Earth according to the nature of their use"

Essential Information about Satellites

Before discussing satellites, it is important to familiarize the reader with some basic information

about them. Satellites usually use several orbits around the Earth according to the nature of their use. The low earth orbit (LEO) utilizes an altitude of 180 km to 2000 km from the Earth's surface. The medium earth orbit (MEO) utilizes 2000 km to less than 35,780 km from the earth's surface. The Geosynchronous orbit, or geostationary orbit, rotates at an altitude of 35,786 km from the equator, and there are other orbits that fall at a higher or mixed altitude.

Satellites in the near and medium earth orbits are utilized in diverse applications, including Earth observation, monitoring and surveillance of the Earth, aerial photography, Global Positioning Systems, government services and certain mobile telephone services. In the case of use of near and medium earth orbits for mobile telephone telecommunications, several active satellites are needed. These satellites orbit the Earth at higher velocities compared to the Earth's rotation around its axis, to generate equal and, at the same time, counterbalanced centrifugal force to the force of gravity, which is inversely proportional to the square distance between the center of the Earth and the center of the mass of the satellite, based on Newton's Law. Thus, it avoids being attracted to Earth by the force of gravity, and due to its proximity to Earth, its coverage of the Earth is limited compared to those using the geostationary (fixed) orbit. On this basis, a balance must be obtained between gravitational and centrifugal forces in order to obtain stable orbit, no matter how high the orbit is. This also applies to oval orbits where the moon's rotation speed changes as it changes from the center of the Earth during rotation. This change occurs automatically unless countered by a powerful external force. Engineers and scientists use the laws of orbital mechanics, including Kepler's laws for the motion of planets and celestial bodies, to measure and design the various orbits of space missions.

Within the Geosynchronous or geostationary orbit, the satellite's rotation speed around the Earth is equal to the Earth's rotation speed around itself. Thus, it is possible to direct ground earth stations to this orbit without having to move them from their location to follow the satellite. This orbit is located around the globe at an altitude of 35,786 kilometers along the equator. This phenomenon was discovered by Arthur C. Clarke, a British scientist, science fiction author, inventor and undersea explorer. The first satellite was launched into orbit in 1963. Satellites used for telecommunications and television broadcasting use this geostationary orbit because of its high altitude, which provides coverage to approximately one third of the Earth. Satellites use different frequencies for transmitting and receiving signals, depending on the orbit used, applications and capacities.

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The means of communication with satellites vary depending on the frequencies used. In addition, certain frequencies are used for specific application types and uses. For example, satellite mobile phones use frequencies in the L-Band within the frequency of 1/2 GHz, and also the S-Band which uses frequencies of 2 GHz and above. The S-Band was also used for some television services, while the GPS service uses the L-Band. In contrast, satellites operating in the geostationary orbit started to use the bandwidth of the C-Band in the 4/6 GHz frequencies for civilian uses

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and the X-Band in the 8/12 GHz frequency range for government uses. The Ku-Band was then used in the 12/18 GHz band. This was followed by the use of KA-Band in the 27/40 GHz frequency range and higher frequency bands.

Each band has specific characteristics as whenever the frequency increases the size of the antenna gets smaller while capacity increases, but it becomes more vulnerable to the effects of weather conditions, such as rain and humidity. An international body within the International Telecommunication Union (ITU) is responsible for the coordination and granting of the required licenses for the use of the required frequencies and the orbital position required for the satellites. At present, there are more than 600 satellites in the geostationary orbit around the Earth, and these satellites are added to, replaced or removed from time to time, based on several factors.

Arabsat Shortens Distances between Arabs

The Arab Satellite Communications Organization, or Arabsat, was founded in 1976 by the twenty-one Arab League member states at that time. The initial capital raised amounted to $100 million, which was contributed by most Arab countries. The United Arab Emirates was among the top five contributors to the capital, including Saudi Arabia, which

contributed the largest share, in addition to significant contributions from Libya, Kuwait and Qatar, followed by other countries.

The establishment of Arabsat was a very brilliant idea and a noble goal. The initial idea was to establish a satellite organization, similar to the international organization Intelsat, which was established through the contribution of almost all countries of the world, including the UAE. Intelsat was an international intergovernmental organization based in Washington, USA, founded in 1964. Later on, Intelsat underwent several reorganization processes, particularly in 1973 and 2001; it now owns a network of approximately 51 satellites.

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The UAE earth stations already established at that time in Abu Dhabi, Jebel Ali and Ras Al-Khaimah were connected to Intelsat satellites.

Like Intelsat, Arabsat was initiated by the Arab countries. It entered into contracts with a consortium of the French/European aerospace companies Aérospatiale and Astrium, to set up two satellites, as well as the option to manufacture a third satellite, which was later confirmed. I was quite fortunate to represent the UAE and to take an active part in the many momentous events that have radically changed the telecommunications sector, especially in the Arab world.

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The First Arabsat Satellite

I was present at the celebration of the launch of Arabsat 1A; the very first Arabic satellite, on the 8th of March 1985. The satellite was launched by the French rocket launcher Ariane from the Kourou station in French Guiana. The launch ceremony was attended by a number of Arab telecommunications ministers and senior Arab officials, and I had the privilege of representing the UAE. The satellite Arabsat 1B was launched in the same year via the US shuttle Discovery. Prior to the launch of the first satellite, a call for capital increase was put forward, but the UAE, who had a different opinion, decided to refrain from contributing to the suggested increase, thus losing the privilege of being one of the top five shareholders. According to Arabsat's bylaws, the Board of Directors must consist of representatives from nine member countries; the top five shareholders and four other countries to be elected every two years. It happened that one of the countries that supported the motion for capital increase actually failed to deliver the agreed upon contribution on the target date and consequently lost its seat among the top five contributors. That seat reverted to the UAE.

In 1986, I was tasked by **Etisalat**, together with Mohammed Al-Qadi, Saeed Al Bahar and Abdullah Al-Etr, to represent the UAE at Arabsat meetings. These meetings, which were held four or five times every year, usually lasted for 3 or 4 days. The first Arabsat meeting after reinstating UAE as a permanent member was held in Tunisia and I was the only

representative of the UAE who attended it. Meetings are usually scheduled to be held in a different member state territory by turn, so I had the opportune chance to visit different Arab countries, like Tunisia, Algeria, Morocco, Libya, Yemen, Saudi Arabia, Oman, Egypt, Syria, Lebanon, Jordan, Mauritania, Sudan and others.

These Arabsat meetings were very fruitful and productive because the representatives of the member states were among the top leaders and senior executives of telecom ministries and companies. The meetings provided an excellent opportunity for the participants in the telecommunications sector in each Arab country to get to know each other, especially during side meetings and accompanying events and gatherings, where it was possible to exchange experiences and hold fruitful discussions focused on the commonly shared problems and opportunities

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With Mr. Ahmed Alhumaidah from Kuwait during an Arabsat meeting

facing this sector in all Arab countries and to come up with appropriate solutions. These meetings also included very humane situations and I remember vividly one of these situations. We were in a meeting in Aden (before the unification of Yemen) in 1989. All the member states had already started building their Earth stations in order to provide the services throughout the Arab countries via Arabsat. The repercussions of the signing of the Camp David Accord between Egypt and Israel were clearly present, including the suspension of Egypt's membership in the League of Arab States and subsequently from Arabsat. Of course, the Arabsat meetings were not immune from engaging in political issues and, in real fact, I learned a lot about politics, in addition to enhancing my linguistic skills in writing and discussion on topics related to the telecommunications sector in Arabic; taking into consideration that all our correspondence and agreements were in Arabic. I really enjoyed and made use of this prized opportunity, which consolidated my love of the Arabic language and my deep appreciation for its rich heritage.

As a result of severing relations with Egypt, Arabsat banned Egypt from the use of the Arabsat satellite, although the Arab citizens in Egypt and everywhere throughout the Arab world had nothing to do with the political differences and conflicts between countries. To meet their need for uninterrupted telecommunications services, we had no choice but to use other international satellites belonging to Intelsat to connect with Egypt.
These developments put a lot of pressure on Arabsat itself and resulted in a substantial income loss because of the banning of Egypt from using Arabsat services, as the volume of Arab telecommunications services with Egypt alone was not less than 30% of the expected income of Arabsat at that time. I had discussed the matter with **Etisalat**'s Board of Directors before heading to the meeting in Aden and informed them about

the serious financial problem facing Arabsat, where its actual income did not even cover staff salaries and that Arabsat did not have sufficient funds. My intention was to come up with a solution to generate more revenue that would help Arabsat to continue, having in mind that the organization had just commenced offering its services and needed more time and support to increase and diversify its services. I was instructed by the Minister and Chairman of **Etisalat** H.E. Mohammed Saeed Al Mulla to submit a paper to the meeting with the proposal of readmitting Egypt to the ARABSAT family, for purely technical and financial reasons, and avoid political issues.

In that meeting, I presented the proposal paper, reminding the delegates that allowing the return of Egypt would increase Arabsat's income, bearing in mind that we were incurring huge extra costs in

with some of Arabsat Board members and Arabsat senior management

payments to other satellite organizations to secure telecommunication linkage between our individual countries and Egypt. The Saudi and the Kuwaiti delegations supported our motion. Suddenly, the head of the Libyan delegation forcefully objected to this step describing it as a continuation and entrenchment of the Camp David plot ... and went on using high-pitched political rhetoric. The meeting resorted to voting and our motion was endorsed by the majority of delegates. When the meeting adjourned, and on leaving the hall, I was approached by the head of the Libyan delegation who said: "I need to talk to you in private." I had developed a very good relationship with him over the years, like most other regular delegates, with whom I had friendly relations and appreciation as we all worked as a team.

I walked with him a little further to know what he wanted. He said, "I would like to thank you for this good proposal."

I said to him: "But you strongly opposed the motion in the meeting?!"

He responded by saying: "My wife is Egyptian. In Libya, we have a real problem in making calls to Egypt. I said what I said in the meeting because I had to. I had to object and put it on record, but I'm personally 100% in support of your motion." The problem was thus settled amicably, but due to the severance of relations between Libya and Egypt at the time and as a solution to the problem of the connecting of calls between Libya and Egypt, **Etisalat** made an offer to the two countries, which was accepted, that the calls between them could be connected through the UAE. This makeshift situation continued until the two countries were finally reconciled.

We welcomed any action that served the Arab region and any cooperation with other Arab countries. Thus, we contributed positively to the development of telecommunication services between the Arab countries. Certain countries kept sending delegations to **Etisalat** to learn

how we handled specific delicate and problematic issues, or to be informed on the results and benefits we achieved through using certain technologies in providing our services. Being pioneers in this field, we were, thus, compelled and pleased to always be at the forefront and proactive in embracing all new and innovative telecommunications technology. Prominent producers of telecommunications equipment and technologies took advantage of this fact to showcase their technology first in the UAE, before any other country, and the UAE eventually became a permanent showcase hub for the latest technologies. Indeed, this experience was quite useful to remind us to always stay at the forefront.

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There are also very gratifying situations that fill one with pride. During long meetings that brought me together with officials from other countries, I used to feel elated listening to the appreciation and acclaim of the experience of our country, particularly towards our leaders. When you are away from home, you see the image of your country through the eyes of others. Their admiration and appreciation fill you with pride that you were born and bred in such a country. Every word you hear motivates you to work diligently in order to sustain and enhance this glorious image.

A Race into Space after the First Satellite

It was recognized that the average life cycle of satellites was estimated at the range of seven to ten years. This was further increased due to the advanced technological developments. It was also known that satellites are subject to sudden failures. As satellites are far away and at high altitudes, the only way to repair any defect that might occur is through preinstalled alternative systems within the satellite which could be activated in the event of a breakdown. Hence, Arabsat had to put in place backup satellites. The production of a single satellite usually took about four years. After the launch of the first Arabsat satellite, the organization started to launch other satellites for service expansion and backup.

In the beginning, Arabsat contracted the production of three satellites; Arabsat 1A, Arabsat 1B and Arabsat 1C, which together represented the first generation of Arabsat satellites. Initially, Arabsat launched just the first and second satellites, because the launch costs were prohibitive, where the value of insurance amounted to about 30% of the total cost of the satellite, in addition to the complex nature of the insurance procedures.

The total cost of a satellite is normally divided equally among the processes of manufacturing, insurance and launching. Satellite insurance is of vital importance because there is always the possibility that the satellite might not work properly, or may not reach the desired orbit, or may lose part of its energy during the launch or thereafter. This is in addition to the many

technical details that make insurance an essential part of running a satellite, which entails spending huge sums of money.

The launch of the first satellite facilitated telecommunication linkage between Arab countries, which was an arduous task prior to that, and the revenues started to increase, but it took a long time to reach the required levels. In return, Arabsat helped connect distant Arab countries, such as Mauritania, which falls in the farthest west corner of the Arab world. Through our link over Arabsat with Mauritania, we were able to connect Mauritania with other countries, such as Portugal which is geographically close to it but does not have a direct link with Mauritania and used UAE to connect the two countries.

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With MR, Mohamed Alqadi during an Arabsat meeting

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Frances Cairncross, titled: “The Death of Distance”, published in 1997. In her book, Cairncross analyses how the telecommunications revolution abolished distances between countries, to the extent that the whole world was turned into a small village and accordingly the nature of business and the ways people connect with each other have greatly changed.

Through the use of satellites, the cost and complex nature of calls became cheaper, irrespective of geographical distance. At the same time, and with the expansion in the use of submarine cables, especially after the development and spread of fiber optic technology and the use of multiple-wavelength technologies, the cost of call transfer and data exchange has decreased significantly and the impact of distance on cost has diminished. This is actually what Cairncross calls the “death of distance”. Today, the death of distance due to the tremendous developments can be seen in all telecommunication uses including of course voice, video and informatics.

Arabsat’s Influence on Life in Arab Countries

Arabsat has had far-reaching impact on the lives of people in the Arab world that went beyond telephone calls to cover many other aspects, such as the media, as a result of the use of satellites.

In 1990, following the Iraqi invasion of Kuwait, MBC was the first TV channel in the region to use satellite broadcasting. Prior to that, there were no

satellite TV stations broadcasting directly to viewers in the Arab World. Other Arab TV stations followed suit and started using Arabsat. Arabsat had several C-Band transponders but only one transponder on S-Band. The advantage of operating on the S-Band was that it covered a wider area yet required a smaller antenna to receive the signal. It was the channel used by MBC at the beginning of its broadcasting. CNN was the second to use Arabsat then others joined.

In fact, Arabsat has succeeded in bringing the Arab countries closer to each other, on the street level, through its satellite television broadcasting. Arab viewers were enabled to follow television programs on TV stations of other countries. As a result of these great advances in the world of calls and television broadcasting, the services provided by Arabsat were greatly improved through providing diversified services and acquired new satellites, which were made available in three different orbital locations. It has achieved advanced international acclaim in its field and is today one of the leading organizations, engaged in partnerships with major international companies specialized in this field.

I conducted a study in 2000 on the profitability of Arabsat, compared to similar international organizations that provided satellite services. The study findings indicated that Arabsat was, at that time, among the best peer organizations in the world, despite faltering beginnings. The leading role played

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by Saudi Arabia, as the largest contributor and user of Arabsat, with its headquarters located in Saudi territory, has undoubtedly ensured great stability to Arabsat. The volume of national and inter Arab telecom traffic by Saudi Arabia is the largest compared to any other country in the Arab world. The UAE has also played a distinguished role through its vast and advanced experience in the field of telecommunications. We were among the first to come up with solutions to the many problems that faced Arabsat and some of its member states because of our readiness to help, coupled with our rich and diverse experiences in this sector.

Our extensive experience in service delivery, quality, pricing and understanding user needs has helped us to lend assistance and support to others. The sideline meetings and talks during Arabsat regular meetings have proved quite useful in solving many of the technical and economic issues pestering many countries and finding the best ways to solve certain problems.

Summary of Arabsat Experience

Undoubtedly, Arabsat is a bright spot in the history of cooperation between Arab countries in the telecommunications sector, and I will never forget the effort and sincerity of the Arabsat management. Through the Board of Directors, the United Arab Emirates, the Kingdom of Saudi Arabia and Kuwait have together

formed a team made up of administrative, technical, legal and financial specialists, who worked with the rest of the board members for the successful accomplishment of Arabsat goals. The members of this team from Saudi Arabia included Faisal Zaidan, Mohammed Jameel Al Mulla, (who was later appointed as Minister of Telecommunications) and Mohammed Saad Al-Shehri,. These three all served as Arabsat Board chairman at some point during my tenure. Other members from Saudi Arabia were Awad al-Assaf, Abdul Rahman al-Fuhaid and Farid Khashoggi. The Kuwaiti members included Adel Al-Ibrahim and Ahmed Al-Humaidah. Members from other Arab countries included Makram Obeid, from Syria; Faraj al-Amari and Mas'ad al-Quwairni, from Libya; Hassan al-Labadi, from Morocco; Azza Turk from Egypt and the late Mazen al-Tai, from Oman, along with so many others.

The first Director General of Arabsat was Dr. Ali Al Mashat from Iraq, who was succeeded by Abdel Qadir Baiery from Algeria, then Saad Al Bidnah and Khaled Balkhyour from Saudi Arabia. Among the great department managers who served Arabsat were the late Saeed Al Qahtani (Financial Manager) from Saudi Arabia, Ahmad Al Amin, (Legal Advisor) and Mohammed Othman Abdul Ghaffar (Technical Manager), from Sudan and many other intellectuals, who worked with all sincerity and determination they could muster to make the story of Arabsat a real success.

> **Undoubtedly, Arabsat is a bright spot in the history of cooperation between Arab countries in the telecommunications sector**

Chapter Eight

Thuraya: A Unique Experience in Building Space Strategy

From the early 1990s, **Etisalat** contemplated the possibility of establishing its own satellite system. This project required exerting a lot of effort and carrying out detailed studies which could take several years to complete. One of the most crucial requirements was to acquire orbital locations, suitable for the type of services projected and for providing the required geographical coverage. It was also necessary to collaborate with the competent authorities within the ITU. Hence, we started by putting together a specialized team to be solely tasked with implementing this project. Accordingly, several orbital locations were selected, coordinated, and obtained, including the orbital location 44 ° E, used now by satellite Thuraya 2, the orbital location 98.5 ° E, used now by Thuraya 3, and the orbital location 52.5 ° E used now by Yahsat 1, among other orbital locations. All of these orbital

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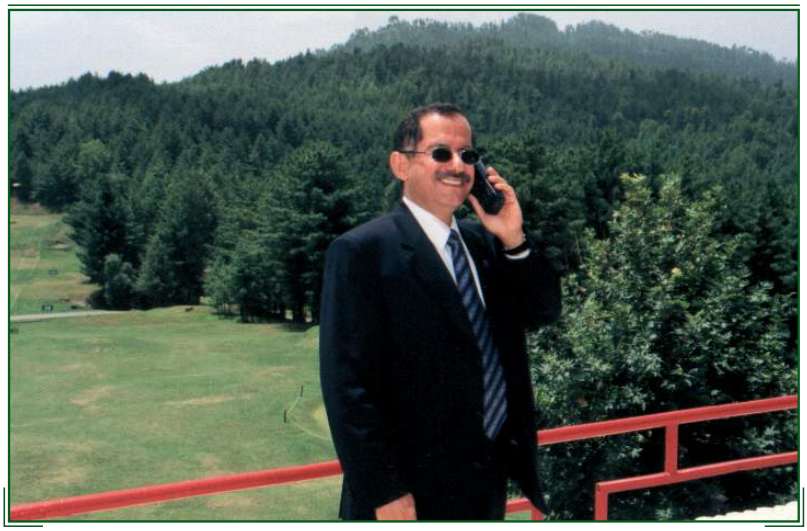

one of first Thuraya calls

locations were suitable for the required geographical coverage and the satellites positioned in these locations could be controlled from within the UAE. Of course, this effort was continued later when the responsibility of coordinating the orbital locations was transferred to the Telecommunications Regulatory Authority TRA, who formed a special team to implement this assignment. Their efforts to obtain new orbital locations continued in order to meet the needs of the agencies and companies operating in the field of space.

Through our contacts with satellite manufacturers, we were able to learn more about the technologies used and the ongoing research towards increasing the capacity, life-cycle and usages of satellites. At the same time, initiatives were made for building specialized satellites to provide mobile services in various parts of the globe, indicating that such services would be timely and economically or practically feasible to complement terrestrial networks by expanding coverage to places where mobile networks could not reach.

At that time, many satellite companies were working on massive projects. The US company Iridium was planning to build a system of 66 satellites orbiting the Earth, at low altitudes of 780 km; Global Star was considering building a similar system of 48 satellites to orbit at a height of 1414 kilometers, while ICO was planning a system of 12 satellites operating at a medium orbit at a height of 10,390 kilometers. Other companies were also considering the use of the geostationary orbits to provide mobile phone services through covering a specific geographical area.

We used to meet occasionally with the Minister and Board Chairman, HE Mohammed Al Mulla, who was closely supervising telecommunications

projects and their work progress. The purpose of those meetings was to brief him on the findings of the studies we carried out on important topics. When we briefed him on our study on satellites, he was of the opinion that we should focus on satellites dedicated to providing telecommunication services, because that was our area of competence. From there we started seriously looking into procuring and operating satellites specialized in the provision of mobile services.

Work started in 1993. We contacted the specialized manufacturers for the production of these types of satellites, which were quite few in number by their nature at that time, because such satellites were mainly used for military and government services, under strictly confidential basis. We decided that the satellite we were to purchase should be of the type that operated at the geostationary orbit and we should

With Mr. Ali Alowais **Etisalat** General Manager during signing ceremony for Thuraya Service provider

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Many technical challenges emerged which the manufacturers had to address and eventually overcome. The first technical challenge was that the satellite should contain a very large antenna with an oval area of up to 12x16 meters, when operating in space. The required large antenna space was inevitable in order for the satellite to work with very small hand-held devices at a distance of more than 35,000 kilometers.The important technical challenge was how to manufacture an antenna of this size, which should be lightweight and foldable at launch and then properly spread open when it reached the orbital position. This was one of the many challenges that we had to study carefully with the manufacturers, to find the most appropriate solution for, as well as discovering the amount of electrical power needed to operate the system in space and the required capacity, frequency reuse, and call forwarding along with many other issues.

Understandably, each manufacturer had its own technology and solutions. We were briefed on the possible solutions expected to be employed to meet the above-mentioned challenges. This was done after signing non-disclosure agreements regarding the sensitive information made available to us from each manufacturing company, which could not be divulged to any other competing company, otherwise we would be legally accountable.

The studies and research continued for several years, after which it was agreed to proceed with the project and establish the proposed specialized company.

Birth of Thuraya and the Choice of the Name

In January 1997, eight shareholding companies announced the establishment of “Thuraya Satellite Telecommunications Company”, with a capital of $500 million. With the establishment of the company, the first Board of Directors was formed, and I was chosen as the Chairman. I continued to carry out my duties with Thuraya, even after being appointed as Chairman and CEO of Emirates Telecommunications Corporation, **Etisalat**.

One of my most cherished memories from that period is the story of the selection of the name Thuraya. It was the subject of prolonged and heated debate, especially as the previously proposed names contained the syllable “sat”, short for the word Satellite, - such as “Emarsat” (Emirates Sat), with which we had originally started. During one of these meetings usually held with the Minister Mohammed Said Al Mulla, he informed us that it was the intention of the UAE Government to use an Arabic name, so we had to choose an Arabic name to replace the coined word Emarsat.

Several names and suggestions were put forward. I do not specifically remember who came up with the

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suggestion of Thuraya (Pleiades in English), which was discussed in depth, then approved. The Pleiades in astronomy is a group of seven planets, also known as The Seven Sisters, which is a cluster of stars that can be seen by the naked eye. In Arabic literature, it is a group of seven prominent poets, and the word is used to denote high altitude, like the Arabic expression بين الثرى و الثريا which translate into "between the earth and the Pleiades", denoting differences or distance. The name was unanimously approved. We approached international companies to create the company logo, which represents a stretched-out hand with a single dot or point, symbolizing the utilization of satellites for the service of mankind. It can also be interpreted in reference to the fact that our company, Thuraya, had brought the planets and the stars within human reach.

The Selection of the Satellite Manufacturing Company

Several satellite manufacturers submitted their bids for manufacturing the required satellites. The competition to win the bidding or the manufacturing contract was very tough. After extensive discussions and comprehensive studies to choose the right design that met our required specifications, we ended up choosing Hughes Space, a specialized company, which was later purchased by Boeing. It usually takes between 3 to 4 years to manufacture a satellite, as many of the required technologies

are to be designed during the manufacturing stage. This required us to exert continuously sustained efforts for long periods of time while engaging different work teams simultaneously. The contract signed between Hughes Space and Thuraya allowed us to send a team of engineers to work hand in hand with their manufacturer's engineers, to work hand in hand with them and note the necessary inspection and testing procedures.

After a short while before the start of the work, the representative of the manufacturer requested that we should send Emirati engineers exclusively, because of the difficulty of obtaining the necessary licenses from the competent authorities in the United States for some nationalities. It was a surprise, but I saw a great opportunity in this for our Emirati engineers to play their prescribed role in the nation's development. A group of our national engineers was selected and arrangements for their travel to Los Angeles in US were

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With some of Thuraya Board members and Hughes Space senior management

made. During a meeting with them, I informed them that this was a golden opportunity for them which would be very important in their professional careers, enabling them to learn the best industrial technologies and work with highly skilled engineers in high precision and specialized techniques. I also reminded them that if I were their age, I would have hoped to be part of their team and wished them success. Here, I must point out that dealing with American companies requires seriousness and inflexibility, on the one hand, but it is definitely far smoother than dealing with some companies in other countries. Americans are usually transparent and straightforward and do not tend to conceal information. It was a golden opportunity for our engineers and all the multinational staff who worked for Thuraya. We will always be grateful to all of them for their conscientiousness and their role as part of a team, working day and night to achieve the great task entrusted to them.

The system consisted of several parts, which were necessary for its proper functioning and the performance of its stipulated role. In addition to the space related sector, i.e. the satellites, there was also the ground sector, which was no less important. The ground sector consisted of two parts: the satellite control station and the connecting terminal Earth station, which contained the necessary switching systems and equipment for communication with the satellite, on the one hand, and the equipment for linkage with terrestrial network and all local and international destinations, on the other hand. This earth station is part of the main station in the Tawi Alsaman area near the city of Dhaid in the Emirate of Sharjah.

The other part of this integrated system was the satellite-operated handheld phones. Each of these different parts of the system required specialized expertise and special equipment or devices that were not yet manufactured, which necessitated that such devices should be specified, designed and manufactured. All of these complicated operations had to

be carried out in parallel in conjunction with other systems, to ensure that we would obtain an integrated system.

The First Thuraya Satellite

The satellite used in Thuraya 1 was one of the largest and heaviest satellites at that time, weighing about 5,300 kg, and fitted with solar cells producing more than 12 kilowatts of electricity. Together with the large-sized antenna, the satellite can create more than 300 radio cells by reusing frequencies. These cells are called spot beams, being embodied on the ground in the form of cells by the super-powerful digital processor, that is fitted on the satellite.

Thuraya satellite ready for launch

> The satellite used in Thuraya 1 was one of the largest and heaviest satellites at that time, weighing about 5,300 kg

> The first satellite was launched on 21 October 2000 by Sea Launch

It is worth mentioning here that the frequencies available at that time were limited and had to be reused many times. The diameter of each cell was about 200 kilometers and the solar energy generated by these solar cells was used to operate all telecommunication devices fitted on the satellite. At the same time, there were fuel storage tanks, filled with dry and oxidized fuel to be used by special propulsion engines to control the orbital position of the satellite, and were also used if the satellite was to be transported from one location to another. The control of all these activities had to be carried out by the control station.

Launching of the First Satellite

The first satellite was launched on 21 October 2000 by Sea Launch, a US company set up specifically for the launch of satellites from a Pacific Sea platform located on the equator, south of the Hawaiian Islands. The launching rocket was manufactured by a joint venture between US, Russian and Ukrainian companies called Zenit 3SL. The satellite was considered to be one of the largest satellites ever used for civilian purposes, to be launched at that time. It was a very successful launch and the satellite settled at its orbital position of 44 degrees east.

Together with quite a number of company officials, I attended the launching ceremony in Los Angeles. One of the engineers, an Emirati,

accompanied the team that was tasked with launching the satellite from a specialized ship near the exact location. A number of Emirati engineers worked with the manufacturer's team in a special operations room to track the satellite from the moment it was launched and to conduct the necessary measurements and tests.

We were in a state of an indescribable delight because of the success of launching the first satellite, in spite of the many actions and procedures to be carried out in order for the system to perform its planned job. Later on, we were faced with some failures on this first satellite, which led to a shortening of its life cycle and scope of services. As a result, Thuraya reached an agreement with the insurance companies on suitable compensation and transferred the satellite to another orbital location. It is noteworthy that the insurance contract was unique and very complex because of the highly advanced technology of the satellite, including the super digital computers and highly complicated devices for the generation of radio cells, in addition to being the highest insurance policy value in the field of satellites at that time.

"We were in a state of an indescribable delight because of the success of launching the first satellite, in spite of the many actions and procedures to be carried out in order for the system to perform its planned job"

"On June 10, 2003, Thuraya 2 was launched by Sea Launch the same company that was contracted to launch the first satellite. On January 15, 2008, Thuraya 3 was launched, again by the same company"

Many more Satellites after the First One

On June 10, 2003, Thuraya 2 was launched by Sea Launch the same company that was contracted to launch the first satellite. On January 15, 2008, Thuraya 3 was launched, again by the same company. To ensure continuity of services through two new satellites we had to dispense with the damaged first satellite. The satellite Thuraya 2 was stationed in the orbital position of 44 degrees East, having moved the first satellite, Thuraya 1, to another orbital position. The third satellite Thuraya 3 was stationed in the orbital position of 98.5 degrees East, which allowed for a wider coverage area in East and North Asia.

A Special International Phone Code for Thuraya

Thuraya established a new telecommunications network system from scratch, which could be easily compared to the process of establishing such a system for an independent state or even bigger than the size of any national state, for that matter. To commence operations, we needed a

special international code, just like any newly independent state. Hence, we approached the ITU to obtain this international phone code. Since we did not operate in a specific geographical area, like some similar companies, it was deemed necessary to designate a special code for the international phone calls on our telecommunications system. The code 0088216 was allocated as a country code to access the Thuraya network. We chose an additional eight-digit numbers in order to be able to provide suitable phone numbers for the countries we covered and provided our services within their territories, by assigning two or three prefixes to each country within the eight digits. On a different level, in order for subscribers of other telecommunication network to access and to dial Thuraya network numbers, all countries had to program their international exchange systems. This was a painstaking process that required

> **Thuraya established a new telecommunications network system from scratch, which could be easily compared to the process of establishing such a system for an independent state or even bigger than the size of any national state**

With Algerian minister of Telecom during launch of Thuraya services in Algeria

cumbersome coordination and follow-up, and we had to visit many different countries to explain how the system worked.

We evaluated the cost of calls to and from the Thuraya network, taking several economic and technical factors into consideration. We also needed to reach agreements with all international operators, which was another process that required considerable time and effort. All or most of these arrangements had to be accomplished within a limited time period before we commenced operating our system, so as to be ready to start operating the system. Since the Thuraya satellite system is an extension of, and compatible with, the GSM system, we entered into phone roaming agreements with mobile operators around the world, so that their subscribers could roam in the Thuraya system and receive satellite calls through their terrestrial mobile numbers. Thuraya subscribers could also use the roaming facility on these terrestrial networks.

Prepaid System and Location Detection Feature

At the end of the 1990s, the prepaid system proved to be effective in terrestrial mobile telecommunication systems. As our services are frequently used in remote areas, where banking services were not available, I instructed our work team to employ the prepaid system in

Thuraya from the day we started launching our operational services. That was a very challenging task for the work team as we were running out of time for the start of our operational services and as the prepaid system required new business arrangements. The team successfully passed the test, which helped reduce the risk of repayment and securing a better cash flow.

With relation to the technical aspects, we needed to have communication lines to connect our station with the world at large. To ensure sustained reliability, in the case of service interruption of the transmission lines, we decided that it was necessary for us to have more than one path between the main Earth station and the telecommunication network. We were quite lucky because **Etisalat**, our primary partner, had made tremendous efforts to provide these services and facilities. As for the telephones, the handsets linked to and operating through the satellite, we faced many challenges and obstacles, notably the lack of the specially designed devices in the markets, appropriate for operating through the system, similar to those handsets needed for the GSM networks. So, it was then necessary to contract a manufacturer or more who could provide the required equipment, with the required specifications, in a timely manner. The contract for the manufacture of satellites and earth stations included also the manufacture, by Hughes Network System, of 235,000 units of portable handset

"The contract for the manufacture of satellites and earth stations included also the manufacture, by Hughes Network System, of 235,000 units of portable handset devices"

devices, specially designed to operate through the system. The devices were to be ready by the time of launching the services. But as the devices were not ready yet, we were faced with the urgent task of designing them, selecting their components, manufacturing and testing them and ensuring their compatibility with the specifications. All of these operations had to be done simultaneously, at short notice.

We picked a number of our engineers, including some Emirati citizens, to work with the company engineers on the design of the equipment to ensure that they conformed to the set specifications. The manufacturing process went smoothly through several stages and we convened at each stage to make sure that the requirements were met.

The Global Positioning System (GPS) feature was included in the specifications so that the location of the mobile handset could be easily located and directed to use the appropriate cell for making calls. Perhaps Thuraya devices might be considered among the very first mobile handsets to use this feature, in addition to specialized positioning devices. We also sought the integration of the location detection feature with telecommunication services, so that the device user could send his location via SMS to any other party. This feature has helped save the lives of many users. Examples can be cited, including many groups of people who lost their way in Sudan, the deserts of Africa and others in Central Asia, as well as those who used this feature to send their exact location to emergency and rescue departments to help in critical situations. It proved to be a revolutionary technological development at that time.

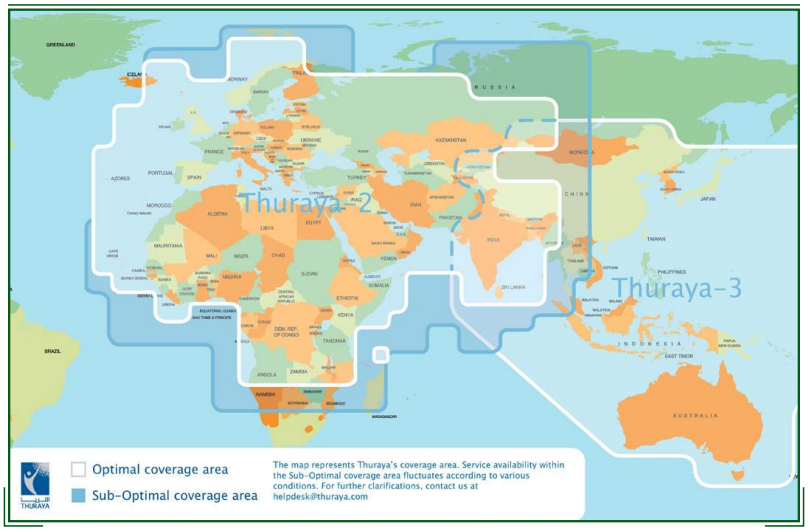
Selection of a Korean Equipment Manufacturing Company

In order to reduce risks, we had to choose another manufacturer to provide another set of mobile handsets which would work in parallel with the Hughes Company to ensure the availability of equipment and devices from more than one source and, as a bonus, benefit from the competitive prices. We selected the South Asia Pacific Satellite Industries, a Korean company, which was a small one compared to others, but was well known for its highly qualified and expert engineers. Working with them required exerting a great effort because the project was quite novel, and they needed to start from scratch. We also arranged to send some of our engineers to work with them in their manufacturing facility in Korea. They stayed in Korea for months working hand in hand with the manufacturer until the devices started to take shape.

"In order to reduce risks, we had to choose another manufacturer to provide another set of mobile handsets which would work in parallel with the Hughes Company to ensure the availability of equipment and devices"

Data Transmission Service via Thuraya

With the spread of Internet services, we started developing the data transmission service, and succeeded in persuading Hughes Network Systems to look into the possibility of developing and manufacturing the device used for this purpose with A5 size. Low speed Data enabled devices were finally manufactured and operated. Additionally, devices for internet access at medium speeds were also manufactured, which were suitable for private use by enterprises, corporations and government agencies.


Thuraya-2
Thuraya-3
Optimal coverage area
Sub-Optimal coverage area
The map represents Thuraya's coverage area. Service availability within the Sub-Optimal coverage area fluctuates according to various conditions. For further clarifications, contact us at helpdesk@thuraya.com

Thuraya Satellite coverage map

The Commercial Aspects of the Project

In the section above I discussed the technical aspects pertaining to the project of establishing Thuraya, however, the commercial aspect was and is a very important element for the company's continuity and achievement of shareholders' goals. To achieve this, licenses had to be obtained in each country covered by the Thuraya network through agreements with the governmental and telecommunications regulatory authorities of each country. This is a time-consuming process and needed a lot of effort, as it involved the innovation of previously unknown technology, hence such licenses could not be awarded along normal customary procedures for everyday local services. In addition, the licensing procedure involved awarding a foreign company the right to operate and provide services. This was quite novel at that time and unprecedented in most targeted countries, which mostly suffered from lack of telecommunications networks covering the majority of their sovereign territories. It is worth mentioning here

> "It is worth mentioning here that the mere reference to the UAE was quite a boost to our enterprise and has been a very helpful factor"

> "In Iraq after the entry of American troops in 2003 some distributors took advantage and started providing international calls from Iraq for more than $10 per minute"

In front of Thuraya distribution office in Kazakhstan

With Russian Thuraya Distributer

With Mauritania Thuraya distributer

that the mere reference to the UAE was quite a boost to our enterprise and has been a very helpful factor, since our country's reputation was, and still is, highly appreciated in most of the targeted countries. This made it easier for us to obtain the required licensing in certain countries.

"We also recognized the dire need for designing and manufacturing special devices for use on board ships to provide access to public networks on high seas"

Selecting Service Providers

The model used in this regard was to engage service providers in each country, usually from among national public telecommunications companies operating in those countries or, in certain cases, other operating companies because a large number of target countries had not yet established free market services to the private sector. Licensing and negotiations with service providers took a very long time and required consecutive follow-up meetings with government agencies and service providers. This affected the chances of reaching sales targets in a timely manner. In addition, when there was change in regimes or in public positions in some countries, which

is quite common in many countries, we were forced to start the whole process all over again and start from scratch!

In a different vein, some businessmen benefited from certain events to accelerate the provision of Thuraya services, as happened in Iraq after the entry of American troops in 2003, where some distributors took advantage of the situation and started providing international calls from Iraq for more than $10 per minute. As a result of the above, most of Thuraya contracts and transactions were concluded with private companies. However, and in many instances, agreements were not adhered to conscientiously by many local service providers, either by changing or reinterpreting certain provisions in the concluded agreements or evading or neglecting contractual obligations or responsibility, so we were compelled to start negotiations with other service providers.

Satisfying the Diverse Needs of Customers

The introduction of Thuraya mobile phone services proved to be quite essential in providing mobile services in many areas. However, the nature of connecting through a mobile device operated through satellites requires outdoor use to ensure direct connectivity between the device and satellite. Hence, it was deemed crucial to design, create and provide other services, such as the provision of fixed mobile devices, which made it pertinent to produce special

devices, as well as designing and manufacturing suitable antennas. We also recognized the dire need for designing and manufacturing special devices for use on board ships to provide access to public networks on high seas.

On another level, we also recognized the need for installing public telephones in remote areas and villages, to enable their inhabitants to have reasonable access to telecommunication services. In addition, we had to consider designing a suitable device for use onboard airplanes. These ever more growing requirements show the large volume of demand for our services, but also the amount of effort, funds and time required, to achieve all this development. For this purpose, Thuraya held regular meetings with its service providers, in which service developers participated, to ensure the engagement of all concerned and relevant parties, to come up with suitable solutions that meet the different types of needs of customers.

The experience of establishing and operating Thuraya has

> **The experience of establishing and operating Thuraya has been an outstanding example of the efforts of Emiratis and other employees from other Arab and foreign countries to work on the most complex technologies and to meet the requirements of an integrated system that includes a wide range of elements**

Public payphone working on Thuraya

Thuraya handset from HNS

been an outstanding example of the efforts of Emiratis and other employees from other Arab and foreign countries to work on the most complex technologies and to meet the requirements of an integrated system that includes a wide range of elements. Thus, Thuraya eventually turned into a symbol for the commencement of UAE space industry, and many of those who participated in the Thuraya team contributed to the development of parallel industries and the creation of new cadres that doubled the number of experts in this field. The participation in the process of giving birth to the Thuraya project and in its resounding success has always been a source of pride to me and to all Emiratis and other employees from many countries who have spared no effort whatsoever to accomplish this ground-breaking project.

Thuraya Promotion Tours Abroad

As part of our work in Thuraya, we had to make frequent visits abroad, which were either technical or commercial in nature. The work of the Technical Group focused on contacting competent authorities in governments and telecommunication companies and distributors, in order to obtain operation licenses for the system and equipment, and to discuss the linkage and roaming agreements, together with settling payment accounts and other technical issues necessary to operate the Thuraya system.

The business group focused on concluding agreements with the main distributors and sub-distributors; organizing seminars to introduce potential customers to the benefits of subscribing to Thuraya services in areas where mobile networks were not available or for businesses that required a certain

degree of reliability. In certain cases, the visiting team consisted of representatives from both work groups. Multiple visits were required for many targeted countries, and often it took us frequent visits to reach the desired result.

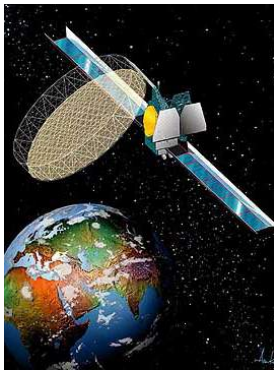
I personally participated in some of these visits, when there was a need for meeting senior officials, or for attending ceremonies to launch Thuraya's services. I can firmly confirm that the name of the UAE was a magical word that opened many, otherwise, closed doors. Just mentioning that we were from the UAE helped to overcome many obstacles, and helped in receiving very prompt positive responses from the entities we visited. We, as UAE representatives, were met with high appreciation and regard wherever we went.

> **Thuraya was a different, rich and patriotic experience We learned a lot of priceless lessons and were introduced to new ways of doing things**

Sea Launch Rocket with Thuraya on board

الثريا
THURAYA

Thuraya Logo



Thuraya in the sky

The Outcome of the Thuraya Experience

For all of us who worked there, Thuraya was a different, rich and patriotic experience. We exerted tremendous efforts but greatly enjoyed doing it. We learned a lot of priceless lessons and were introduced to new ways of doing things. Everyone worked with real passion and enthusiasm, which I could see in the eyes of both Emiratis and expatriate staff. We were fully aware of the responsibility we had to shoulder courageously, and indeed everyone worked creatively. Such terms like negligence and failure were unheard of within the work place.

In terms of business and the goals we achieved, it would not have been possible to succeed without the unlimited and considerable support we received from the Thuraya Board of Directors and from the financing parties. It is necessary to put things in their historical context, as the telecommunication sector has witnessed huge and fast developments and changes. The cost of mobile phone systems has dropped substantially within close intervals. Another substantial development was the influence exerted by the Chinese permeation of the mobile phone market, offering their products at very low prices compared to other competitive suppliers, which has changed the whole scene. As a consequence of this change, we did not achieve our commercial goals according to our originally set targets and plans. However, the company is still a pioneering enterprise in the field of satellite telecommunications and has expanded its fields of operation.

Thuraya's experience has been very rich and important and we have

greatly benefited from this experience at both personal and national levels. It has also contributed to building the culture of handling advanced space technologies and satellite technologies in the UAE. The country has made great strides in this field. We have had a considerable number of satellite stations in Dubai, Abu Dhabi, Sharjah and Ras Al Khaimah. We also have a good number of satellites specialized in many fields, including the recently launched satellites, “Dubai Sat” and “Yah Sat”, among others.

“The UAE government has also established the Emirates Space Agency”

KhalifaSat was launched in late 2018. Currently, the UAE is working on building the “Hope Mars Probe”, which is planned to reach Mars by 2021, coinciding with the 50th National Day anniversary. The UAE government has also established the Emirates Space Agency, a specialized entity that coordinates the industry and management of space, including satellites, and has close ties with universities that offer specialized courses on satellites and space.

The UAE has opened the door for utilization of space for civil applications, and we are proud that through Thuraya we were the first to enter into this difficult and entirely new field. We are proud that we succeeded in putting in an excellent performance through the industrious efforts of ambitious Emirati youth, who were guided and led by an encouraging and supportive government with a clear vision, that fueled their passion for success. It proved the saying that, “Nothing is impossible under the Sun!”

Chapter Nine

Notable Experiences in my Professional Career

In this chapter, I shall leave behind the milestones of my professional career and try to describe in brief some of the most notable events and experiences which have left quite discernable marks on my professional career, and on me personally. These were momentous events.

"Etisalat, as the sole telecommunications operator in the state, played a prominent role in this growth"

Solutions Towards Further Reliability

The end of the 1980s witnessed a rapid growth in several public sectors within the UAE. **Etisalat**, as the sole telecommunications operator in the state,

receiving an award from HE Shaikh Nahyan bin Mubarak

played a prominent role in this growth. At the time, the use of bankcards, like Visa and MasterCard, was rapidly increasing and started to play a significant role in daily trade transactions. Business owners were then obliged to seek direct consent before accepting any transaction through bankcards. Shop owners or salespersons had to get the bank's approval for concluding the purchase transaction via direct telephone calls to the concerned bank. This process used to take a long time, especially during peak hours, and the possibility of erroneous or false information being given was high. To avoid the waste of time and the possibility of fraudulent actions, we came up with a tentative solution to the problem. Banks resorted to the dial-up system to allow merchants to access their computer system in order to obtain the required bank approval. However, this solution proved to also be flawed, because telephone lines operated at a limited speed, and were subject to breach. A high-ranking officer of a major UAE bank visited me seeking **Etisalat**'s help in coming up with a radical solution that would guarantee reliability and speediness of the system, because his bank was then undergoing huge expansion and diversification, which required innovative solutions, designed especially for his bank.

We discussed the matter with our engineers and succeeded in creating an innovative system for the said bank to operate independently and safely. We implemented an independent system which could only be used by specific merchants' numbers which were predefined by the bank. The client bank would order his/her own ID number, under what we called "Service 400". This private ID number could be used by the merchant to access the system. When connected to the system, the merchant ID number would be automatically recognized by the bank system. That was the beginning

of **Etisalat**'s business reliability solutions which was later recognized world-wide.

Telecommunications and Services Boom

The UAE has witnessed tremendous growth and prosperity which has attracted large numbers of businessmen, companies and jobseekers in various sectors. This boom was clearly reflected in the great growth in the telecommunications sector, turning the country into one of the top ten countries in the world for the volume of international calls in the 1980s, and it was ranked second in the Arab world, after Saudi Arabia.

In a comparative study I conducted in 1987, it was transpired that the number of outgoing minutes from the UAE was higher than the number of outgoing minutes from India or Korea, which are much larger in size and population. International calls constituted an important source of income, while internal calls within the domain of each UAE city remained free.

"The UAE has witnessed tremendous growth and prosperity which has attracted large numbers of businessmen, companies and jobseekers in various sectors"

As I detailed earlier, this huge demand for services tempted **Etisalat** to establish major satellite Earth stations, and to lay submarine cables.

Taking advantage of that phenomenal economic growth, the telecommunications sector adopted capacity development policies and worked towards enhancing service delivery and provision of comprehensive and competitive services, as previously discussed. Of course, the UAE economy has benefited tremendously from the availability of a strong network at its disposal, which is capable of meeting the needs of diverse companies. The government's directive was clear: connect all areas of the UAE to the telecommunication network, and this has consequently led to a balanced growth across the country. To give an example of this, Abu Dhabi National Oil Company (ADNOC) had its own independent telecommunication network, with in-house engineers, technicians and staff. This network, which was quite expensive to run, used to cover its vast areas of operations in Dhafra and offshore areas. **Etisalat** offered the opportunity to provide them with all required services by establishing a unified network linking all ADNOC's sites and subsidiaries, at lower costs and with better quality of service. ADNOC accepted our offer and we connected them to our network, which provided them sufficient protection against service interruption and network failures.

Another example was the Ministry of Information which had two television stations, one in Arabic and the other in English. They had repeater stations within the UAE, in Abu Dhabi, Jebel Ali, Sharjah, Ras Al Khaimah, Al Ain and Fujairah. These two TV stations used their own microwave networks, at a very high cost. We offered to provide the Ministry with capacities required for those two stations, taking advantage of our highly reliable fiber optic cables. The offer involved providing them with a ring network within the closed circuit; which means that an alternative point was ready and on standby to provide transmission in case of interruption at any given

point. We also suggested that we could secure signal transmission during major sporting or cultural events, or any other important festivities, through reverse broadcasting. For example, suppose that they wanted to broadcast a football match scheduled to be played in Al Ain city. Such broadcasting required certain relay equipment. We suggested that we would provide them with a direct linkage line from all UAE cities to Abu Dhabi and vice versa, which would greatly reduce the actual costs to be incurred. They accepted our proposal and we concluded an agreement to that effect and succeeded in transmitting and broadcasting major national events at significantly lower costs than they had previously incurred.

The bottom line is that we, in **Etisalat**, secured the delivery of highly valuable services to our clients at lower prices, while continuing to provide the customers with everything they needed, including private switches, fax machines and modems. Later on, we realized that it would be more convenient to break our monopoly on sales of such equipment and open the market for private companies to sell these devices. This move opened the door for competition amongst companies to provide the market with various types and makes of devices according to the principles of supply and demand.

A Momentous Regional Action that Shocked the World

On the 2nd of August 1990, a historic incident rocked the region and shocked the whole world; namely the invasion of the State of Kuwait by Iraqi forces. It was a military action with open ended potentials, including missile attacks and destruction of infrastructure. Long before that we were working on contingency plans in case of emergencies including acts of war. We had to move quickly to secure alternative or back-up lines and networks, in the event of an attack, bombing or any hostile action. Among points raised was the possibility of the sudden departure of foreign employees of **Etisalat**. Several critical questions were raised concerning how we would operate the system in such a case, and what we should do to solve such an intricate crisis.

Etisalat started immediately to form a crisis group comprised of various disciplines. We assigned different tasks to the members of this group and established a separate network, not connected to the general public network, to keep us connected around the clock in case of emergency. As part of our preparations to respond effectively to any attack on any of the major inter-city bridges, and to avoid the interruption of telecommunications services in the event of certain incidents, we agreed with the concerned authorities to start as quickly as possible to extend secured land and submarine cables to provide alternatives in case of emergency. We worked for months on ensuring these alternative measures but, fortunately

enough, the crisis was over without being impelled to resort to the alternative network. However, the whole incident proved to be quite useful as an exercise on practical crisis readiness, which helped us in exploring our inherent capabilities. We eventually merged the private emergency network with the public network and benefited from the extra capacity and capabilities.

Receiving Aliqtisad wal Aamal award from HE Nasser Al Suwaidi

Receiving Arab Business Forum Award

Before closing this thread about the1980s and the transition to the 1990s, I need to pause for a while to talk about my participation in the International Telecommunication Union (ITU) meetings.

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ITU Meetings

ITU's work falls into three main categories: Radio communication, Telecommunication Standardization, and Telecommunication Development. The ITU work is carried out through meetings of specialized competent committees. Initially, **Etisalat** refrained from taking part in the ITU meetings because they were permeated by political squabbles; instead the UAE was then represented by delegates from the Ministry of Communications. However, with the technological development and growth of telecommunications, it was deemed pertinent that **Etisalat** should participate in the workings of ITU, especially in meetings concerned with issues of radio communications. That step was considered crucial for us as we had started owning satellites. Nowadays the UAE is the only country in the region that owns a satellite system used in multiple fields, and the only country in the region with a well-established space agency.
We recognized the dire need to take part in the ITU meetings dedicated to research on radio, system and device specifications. Ironically, the GSM system was not part of the agenda of the initial ITU meetings and was included only at a later stage in those meetings and I personally

participated in a number of the ITU meetings.

The ITU also organized certain large meetings under the name of Plenipotentiary Meetings These conferences, organized every four years, had prolonged sessions that would drag on for more than one month. The focus of discussions was on reaching resolutions on major telecommunication policies for future application, such as mobile systems standards,

With HH shaikh Mohamed bin Rashid during Gitex

With HE Minister of Economy receiving Achievement Award 2007

> **Etisalat refrained from taking part in the ITU meetings because they were permeated by political squabbles**

> **In Minneapolis, US, in 1998, when the decision was taken to grant Palestine the international code 970**

Radio frequencies allocation for various uses, inter-state relations, call tariffs and other details of real importance for the sector.

I had the opportunity to participate in ITU meetings for the first time in Melbourne, Australia in 1988. That meeting was devoted to discussing world telecommunication standards and policies and was to submit its recommendations and decisions to the Plenipotentiary Meeting for endorsement. That particular meeting lasted for three weeks, during which time various issues were discussed. I clearly recall now India's call for not putting an end to the traditional telegraph service, because there were so many areas in India at that time which depended entirely on the telegraph service as the only means of communication with the outer world. I also recall that there was a long discussion about the cost of call terminations between the countries and the demand of some countries to be paid more shares of the call charges and many other issues.

Part of my duties in **Etisalat** involved representing UAE in ITU meetings and I participated in many in different countries, including Nice in France, Minneapolis, the United States, Japan and others. I recall very clearly that I was present in one of these regular meetings in Minneapolis, US, in 1998, when the decision was taken to grant Palestine the international code 970. As part of my responsibilities, I attended many meetings, which were sometimes attended by ministers and subject matter experts including national intelligence services executives when delicate and sensitive issues were on the agenda. As a telecommunications company, we had special interest in conferences devoted entirely to deliberations on radio systems and usages. In fact, these conferences were very important although it is not easy to build the culture of international conferences in specialized areas. Fortunately, though, the UAE held a prominent position in this regard, through its representatives to these meetings, who helped build a culture of international conferences. Among those were engineer

Mohammed Al Ghanim and Nasser bin Hammad, who held important and prestigious positions in the ITU for some time. The latter was the first person from the Gulf region to be elected as member of the ITU Radio Regulatory Board. Both were my students and graduates of **Etisalat** College whom I deal with as my own sons.

A few years ago, UAE hosted one of these plenipotentiary meetings. I was retired by then and was no longer working for **Etisalat**. The meeting was organized by the Telecommunications Regulatory Authority in cooperation with the local telecommunications companies. There is no doubt that this event has helped in promoting the UAE globally, and placing it in the ranks of the most senior ITU member states.

Participation in GCC and Arab League Committees

During my tenure with **Etisalat**, I had the honor of participating in several committees founded by the

Gulf Cooperation Council (GCC) to coordinate between member states in the field of telecommunications including the development of rules and regulations, discussion and finding suitable solutions for commonly shared concerns and proposals of the necessary policies and technologies. Among the most major topics raised in the meetings of these telecommunications committees were the use of GSM; roaming service and basis for charging calls between the member states, in addition to contingency plans in cases of emergency interruption of telecommunications systems, among others.

Our collective work under the umbrella of the GCC has fostered closer direct and indirect coordination between member states in the various fields of telecommunications and related services. With the opening of GCC markets to other operators, we had the opportunity to win the license for operating the second mobile operations in Saudi Arabia, hence, directly competing with STC. However, such competitive relations did not affect our constructive cooperation with STC in other activities, such as participation in the installation and maintenance of submarine cables, as

With Saudi Minister of Telecom receiving an award from Aliqtisad Wal Aamal

well as coordination in international forums. Those meetings were very helpful in strengthening bonds of friendships and mutual respect amongst the attendees and had a positive impact on our efforts to serve our countries, companies and communities.

We, the GCC states, have established distinguished relations with the representatives of the rest of the Arab countries, through the exchange of views and experiences. This fruitful collective work has involved successfully sorting out various issues, such as mutual exchange of services and charges for call terminations and roaming costs, which was activated between the Arab countries. We have also adopted unified positions on specific issues raised within the platform of Arabsat, such as lobbying with other countries for frequency allocation and coordination , the selection of Arabsat Managing Director and in the support of

> "During my tenure with Etisalat, I had the honor of participating in several committees founded by the Gulf Cooperation Council"

Another meeting with Barcelona FC Chairman

Arab candidates for elections of the International Telecommunication Councils, with the view to fair representation of Arab countries within these international bodies. Taking an active part in these successful activities on the regional and international arena fills me with real pride.

Telecommunications Committees under the Umbrella of the Arab League

In the same vein of work under the platform of the GCC, the Arab League has set up telecommunications committees and **Etisalat** has contributed to a

With Shaikh Maktoum bin Mohamed during handing over of **Etisalat** contribution for Dubai Cares

number of these committees, which are similar to the GCC committees but on a larger scale. The Arab league committees are subject to the same principles, but the number of member states is larger, and the workload is broader and more comprehensive.

I have benefited a lot from my participation in the Arab League Telecommunications Committee which was assigned the task of discussing call costs where normally charges are based on Special drawing rights (SDR). We also managed to persuade participants to lower the prices of calls in order to make calls between Arab countries cheaper. Each of these points was subject to lengthy discussions and meetings, to answer nagging questions and give clarifications, before we finally succeeded in endorsing major resolutions!

> Our collective work under the umbrella of the GCC has fostered closer direct and indirect coordination between member states in the various fields of telecommunications and related services

With HE Shaikha Lubna Alqassimi

> The Arab League has set up telecommunications committees and Etisalat has contributed to a number of these committees

The Volume of International Telecommunications and Mobile Phone Calls

In the ’80s the volume of international outgoing calls from the UAE grew steadily, surpassing even larger countries, like Korea and India. In order to stay ahead of the others and to provide high-quality local services, we worked tirelessly on developing our land and mobile networks and local and international connectivity lines. At the same time, we periodically reviewed and reduced call rates to achieve greater market penetration. This strategy proved to be a real success, and **Etisalat**’s name was always linked with the provision of the best services, with the highest quality possible at reasonable prices. We achieved this while maintaining growing revenues for the company.

As of the turn of the new millennium, and until I left **Etisalat**, the UAE was among the top-ranking states in the world in terms of the number of mobile lines per 100 inhabitants, the measure that was used to assess mobile penetration. The UAE was also among the highest countries in terms of the number of minutes used per day. We were keen on building an expandable network with sufficient capacity to operate under all circumstances. Strangely enough, the UAE has registered the world record in the highest percentage of daily mobile phone calls, which is a paid service, although the landline service is free of charge. Intra-city land calls remain free of charge, but people are reluctant to use them,

preferring to use mobile phones! This is due to the ease and convenience with which the mobile phone is used. Also, calls from mobile phones are directed to a given person, thus reducing the chance of other persons answering the call.

With HH shaikh Mohamed bin Zayed Al Nahyan

Another Photo with HH Shaikh Mohamed bin Rashid Al Maktoum

> "As of the turn of the new millennium, and until I left Etisalat, the UAE was among the top-ranking states in the world in terms of the number of mobile lines per 100 inhabitants"

Chapter Ten

Growth and International Expansion

Successive technological breakthroughs and their major impact on the future growth of telecommunications companies, including their revenue generation prospects and sustainability, have underlined the need for exploring the viability of expanding our operations into foreign countries to help achieve the company's strategic goals.

Many international telecommunications companies have succeeded in making great strides in this field, such as the Spanish Telefonica, which acquired most of the telecommunication companies in Latin America; MTN of South Africa, which acquired many companies in Africa as well as certain countries in the Arab region; and Vodafone of UK, which expanded in throughout the world. The benefits gained by these companies through such an expansion process include cost reductions through group purchasing, centralized planning and sharing of networks and services, which, in turn, provide better internal returns and reduction in cost. Of course, there are always some surprises arising from technological developments, fierce competition and political and economic factors.

Zanzibar

The First Step Taken into World Markets

For a long time **Etisalat** was quietly mulling over the possibility of expanding abroad. This coincided with a visit to the UAE by the President of Zanzibar. He visited us at **Etisalat** headquarters to invite us to visit Zanzibar (a group of islands which entered into a confederation with Tanganyika under the name Tanzania) to explore the possibility of establishing and operating their local mobile network. Thus, we started our first business venture in foreign territories with a small network and capital in partnership with the Zanzibar government and local businessmen proposed by our Zanzibari partners. That is how the current Zantel telecommunications company was born, with **Etisalat** owning 51% of its total shares.

The Birth of "Mobily"

In early 2004, the Kingdom of Saudi Arabia invited bids for the launch

of a second operator in the Kingdom, and we, in **Etisalat**, decided to bid. At that time Mr Ali Al Owais was still the General Manager of **Etisalat** and I was the Deputy General Manager, with my major role focused on Thuraya Company.

Saudi Arabia is considered an ideal market in terms of geographical location and population size. Its population was approximately 25 million at that time, and it was witnessing a very substantial economic growth. In short, we reckoned that obtaining a license to work in KSA would be a successful expansion, and because it is a sister country, communication with Saudi officials would be easy, and reaching a mutual understanding with the concerned parties near guaranteed. **Etisalat** handpicked a group of consultants to help with the bidding process and procedures. Most of the relevant preparatory work for joining the bid had already been accomplished when

> "In early 2004, the Kingdom of Saudi Arabia invited bids for the launch of a second operator in the Kingdom, and Etisalat, decided to bid"

> "Saudi Arabia is considered an ideal market in terms of geographical location and population size"

With Telecom Minister in Ivory Coast

Mr. Ali Al Owais decided to retire, and I was appointed as Acting General Manager. By that time, most of the work had already been processed and we were all geared up for entering the bid competition. Hence, I can't personally claim the credit for winning the bid, as I just continued with what had already been done.

The competition was very tough against so many prestigious international telecommunications companies, but our offer proved to be the best, in terms of both prices and services. We also committed to put the entire network in operation within six months from the date of obtaining the license and frequencies. That was a significantly short time period, especially considering the fact that the scope of work involved the timely carrying out of specific requirements for each stage and putting in place the expansion mechanisms accompanying each stage.

It is worth mentioning here that the initial coverage area included Riyadh in the Central Province, Dammam in the Eastern Province, and Makkah, Madinah and Jeddah in the Western Province. **Etisalat** offered about $3 billion for the license. As we were bound by the tender conditions to have Saudi partners, we chose several Saudi companies, in addition to the Private Sector Pension Fund (GOSI) as partners in this process. It was also mandatory that we allocated shares to Saudi and Gulf shareholders through a public offering at a specified stage of the process. Accordingly, a partnership agreement was signed, and a nine-member board of directors was chosen, five of whom, including the chairman, were Saudi, to ensure a simple majority for the Saudi partners. I was one of the remaining four members who represented **Etisalat**. All this happened during the short period from winning the bid until the end of 2004.

For the implementation of the KSA project, **Etisalat** formed a large local team, supported by the expertise of a group of carefully selected consultants and a team of our **Etisalat** engineers and technicians, who already had

extensive fieldwork experience in mobile phone networks. We decided to cooperate with international network manufacturers, such as Ericsson, Huawei, Alcatel and Motorola, by dividing the work among them, in order to start work simultaneously in different locations and all networks to ensure implementation before the six-month deadline. Meanwhile, **Etisalat** also published a job advertisement to hire Saudi nationals, as the Kingdom is rich in experienced talent in various fields.

> The competition was very tough against so many prestigious international telecommunications companies, but our offer proved to be the best

The challenges were many, but what distinguished us from the others was that we knew the market. Each market had its specific intricate requirements regarding licensing and systems procedures which required proper scrutiny prior to engaging in the actual work. One of the challenges was that some people had concerns with living near telecommunication towers for fear of their impact on health.

> After prolonged deliberations and suggestions, we settled on "Mobily" as the trade name for the new company

In light of all the above, we were fully aware of the fact that we were competing with a big company; namely STC. We were working hard to acquire an important market share in a rapidly growing market. Our ultimate goal was to consolidate our position. We wanted to make the best utilization of the available period before the market opened up to other competing companies or before the emergence of new technological advancements or abrupt changes in the market.

Then it was time to look for a brand name for the new company. We usually seek the professional and expert assistance of specialized companies in such matters. After prolonged deliberations and suggestions, we settled on “Mobily” as the trade name for the new company. It is a very familiar term which could be easily grasped by prospective customers as it translates simply as” My mobile phone”. It proved to be quite appropriate and attractive, especially as we mainly targeted young customers. So, it was quite understandable to address them through the language they spoke rather than adopting a different trade name.

On May 25, 2005, Mobily launched its services, very much within the six-month deadline as stipulated in the license contract. In just three months’ time, the number of subscribers exceeded one million. It was an unprecedented success. Mobily continued implementing the preset expansion strategic plan to extend coverage to the entire KSA territories. Later in 2008, Zain obtained a license to set up a third network, and by that time Mobily had already solidified its position as the best choice for a large segment of the Saudi market. Mobily continues to operate in the Kingdom and continues to grow and flourish.

The entry into the Saudi market was the largest operation undertaken by **Etisalat** at that time, and the company has benefited a lot from that bold step and strengthened its position as the largest telecommunications company in the region. It has also benefited from discounts offered by major suppliers of hardware, networks and services to both companies, which was beneficial to Mobily and its shareholders. We also acquired an in-depth and detailed knowledge of the telecommunications needs and aspirations of the Saudi market. My personal acquaintance with members of the Board of Directors from the Saudi side was a great help too. Some

of those close friends later assumed senior positions and ministerial portfolios.

Expansion into Pakistan

At the time I was appointed as acting CEO, the Chairman of the Board had been overseeing the process of expanding into the Pakistani telecommunications market, following the Pakistani government's decision to liberalize the telecommunications sector, and encourage foreign companies to invest in their open market. Having won an international competition, we acquired a 26% stake in Pakistan Telecom PCTL, together with the management rights. Pakistan Telecom was a state-owned company that provided various fixed services, and also owned a mobile services company called Ufone. As the contract signed with the Pakistani authorities bestowed upon **Etisalat** the right to manage the company, we immediately proceeded with deploying both Emirati and foreign staff to work in Pakistan. This enterprise has accomplished substantial growth and is still working successfully today.

West Africa

The telecommunications market in Africa has always offered significant investment opportunities for many international companies. Atlantic Telecom, commonly known as AT, owned several smaller companies in a number of West African countries such as Ivory Coast, Niger, Benin, Togo, Burkina Faso, Central African Republic and Gabon. AT expressed an interest in engaging new shareholders, which opened a window for **Etisalat** to enter into this promising market.

Etisalat entered as a shareholder in Atlantic Telecom through an increase in capital along with other shareholders from some African countries. The company witnessed a significant expansion of its networks and services during the period following **Etisalat**'s entry. Later on, **Etisalat** agreed to buy stakes in Maroc Telecom and consequently integrated the West African services under the management of the Moroccan company, which owned other networks in the region. This move took place after I left **Etisalat**.

Nigeria: The Largest African Market

In 2009, Mubadala approached **Etisalat** with an offer to enter into a partnership together with other Nigerian investors to apply for a telecommunications license in Nigeria, where several mobile operators were active at the time. Among those operators was a Zain subsidiary, working in several African countries before being sold to the Indian Bharti company. There was also another South African company, under the trade name of Mobile Telephone Networks (MTN), operating in Nigeria, in addition to two other companies providing wireless services other than GSM. During the first three years, the company managed to attract about 25 million subscribers and position itself well in that highly competitive telecommunications market. Of course, each market has its own idiosyncrasies. Some issues surfaced with the Nigerian partner, leading to disputes between the shareholders, which eventually lead **Etisalat** to leave the Nigerian telecommunications market. This happened several years after I left **Etisalat**.

> The telecommunications market in Africa has always offered significant investment opportunities for many international companies

> During the first three years, the company in Nigeria managed to attract about 25 million subscribers

Afghanistan: Expansion amid Topography and Security Challenges

The tenure of His Excellency Ahmed Al Tayer as Minister of Telecommunications, and as Chairman of **Etisalat** ended in 2004. Consequently, I took over as Board Chairman. Meanwhile His Excellency Sultan bin Saeed Al Mansouri was appointed Minister of Telecommunications between 2004 and 2006, then Minister for the Development of the Government Sector and later as Minister of Economy. During his tenure at the Ministry of Telecommunications, the Government commissioned him to attend a conference in Afghanistan, and I accompanied him in my capacity as **Etisalat** Board Chairman.

After the conference, we met the incumbent Afghani President Mr. Hamid Karzai who suggested that we should consider applying for a mobile network license in Afghanistan. The procedures for obtaining the license went smoothly and we got the license at a reasonable cost, considering the Afghani market was then divided between two operating companies. The Afghani market was a real challenge because large parts of the country were not covered by the available network, coupled with ominous security risks and difficult mountainous terrain. We started to work with a core management team of UAE engineers and administrators in addition to other Arab and foreign experts. We achieved substantial successes despite the challenges encountered.

Indeed, the Emiratis were highly respected across Afghanistan and

recognized as people dedicated to the service of the inhabitants, without any hidden agenda. So, the interaction between us and the different sectors and segments of society was good and fruitful. We made it a point to take part in their various social and cultural activities in several places, including dangerous areas from a security perspective. We never intervened in internal political matters and we demonstrated that we were there to provide them with essentially needed everyday services. The company continues to work successfully to this day.

> The Emiratis were highly respected across Afghanistan and recognized as people dedicated to the service of the inhabitants, without any hidden agenda

Entry to Sri Lanka

Between 2008 and 2009, as part of our balanced investment plan within the Asian continent, and following expansion in new, fast-growing markets, the time to go into Sri Lanka came as a natural move, in line with our interest in expanding into markets with promising returns. One of the three companies which were operating in the Sri Lankan market at that time was offered for sale. We submitted our offer and succeeded in acquiring the shares of Tigo Sri Lanka, a subsidiary of

> Etisalat's experience in ever-growing Indonesia was quite positive as we garnered substantial returns

Millicom International, to the value of around US $200 million. We immediately started to develop the capacity and services of this company. We invested heavily in the newly acquired company which has had quite a positive impact on the telecommunications sector and its growth in that country. In 2010, the company's name was changed from Tigo to **Etisalat**.

Indonesia Exit with Rewarding Profits

The Republic of Indonesia is an archipelago of 17,550 islands. It is a vast country with huge potential, with a population of more than 230 million. Indonesia has one of the highest economic growth rates in Asia. We were offered a promising proposition from one of the banks, to buy 20% of an Indonesian telecom company, as one of its shareholders had offered this stake for sale. After carefully studying the offer, it was submitted for approval to the Board of Directors. After agreeing on a reasonable share price, we concluded the deal and became shareholders in the company, holding 20% of the shares, with board representation. Our involvement in the company continued for several years, before **Etisalat** decided to pull out of the Indonesian market and sell the stake to another shareholder at a profitable gain. **Etisalat**'s experience in ever-growing Indonesia was quite positive as we garnered substantial returns.

India: An Unforgettable Experience

Our experience in the Indian subcontinent was quite different, as it turned out to be less beneficial than other experiences. India is a huge country with many operating telecommunications companies. Licensing procedures differed from one region to another and separate licenses were required for operating in major cities, and in different states outside major cities. The laws have changed now, but that was the pattern at the time of our involvement in the Indian market.

The Indian government issued operating licenses for mobile phone services to three or four new companies. Most of these newly licensed companies offered to take **Etisalat** on board as partners, according to the laws and regulations in force in India. The majority of these new licensees were financial companies looking for partners in the technical and commercial aspects of operations, along with recognized expertise in the design and operation of mobile networks. Simultaneously, discussions along the same vein were held with other operating companies in the area of mobile services.

Our experience in the Indian subcontinent was quite different, as it turned out to be less beneficial than other experiences

After a series of discussions with a number of Indian companies, we decided to engage in partnership with Swan Telecom, acquiring 49% of its stakes. According to Indian regulations, this ratio could be increased in the future, as the Indian system allows foreign shareholders to hold up to 70%. The partnership contract with Swan Telecom stipulated that **Etisalat** would be entrusted with the management of the company and we started working and building the networks in 2010.

During the same period, the Norwegian company Nortel and the Russian company Sistema bought the majority of stakes in two other Indian companies. In addition, the Japanese company NTT DOCOMO bought a large stake in a telecom company that was part of India's gigantic Tata company. Later on, a decision was issued by the Supreme Court of India to cancel all new licenses for suspicion of corrupt handling in the procedures of granting these licenses to the beneficiary Indian companies. As a result, **Etisalat** decided to discontinue its operations and pull out of India in 2011, even though **Etisalat** had spent huge sums of money on the purchase of the stake, in addition to **Etisalat**'s share in the costs of setting up the network. **Etisalat** filed damage claims, because it had fully complied with the legal procedures in force in obtaining the stakes and embraced perfectly appropriate technical processes in its operational engagements in India.

In 2016, the Supreme Court in India issued a ruling confirming the cancellation of licenses as erroneous, but I didn't follow the developments of the case as to whether **Etisalat** had been paid damages or not. During that crisis, the UAE government stood by **Etisalat**, exerting all possible efforts to reach an amicable settlement with the Indian side, as the UAE's has always maintained very good relations with the Indian government and the incumbent Prime Minister. It was very important for the Emirati government to reach a fair settlement in this dispute. This was an

unpleasant and costly experience, considering the tremendous efforts that went into the establishment of the networks and meeting all other requirements to ensure the success of the project.

This highlights one of the problems associated with foreign investment, which underlines the need for having competent authorities to be consulted before entering into any foreign investment or in case of any difficulties encountered thereafter. In anticipation of problems that might face UAE firms investing abroad, the UAE Government, through the Ministry of Economy, established the UAE International Investors Council to provide support and advice to such companies. Mr. Jamal Al-Jarwan was appointed as Secretary General of the Council. Mr. Al Jarwan is one of the most distinguished Emirati experts in international relations, who worked with me at Thuraya and later on in **Etisalat** in the same field.

> **In 2016, the Supreme Court in India issued a ruling confirming the cancellation of licenses as erroneous**

Etisalat in Egypt: a Great Success

Egypt was a bright spot on the map of **Etisalat**'s expansion abroad. After two years of actual operation, **Etisalat** in Egypt succeeded in attracting 15 million

subscribers, whereas other competing companies needed more than ten years to reach this figure. There were only two companies controlling the Egyptian market at the beginning. The first was Mobinil, which was originally founded by the Egyptian government and later sold to France Telecom and Orascom, followed by offering some of its shares for sale, before changing its name to Orange. The second was a consortium of the late Mohammed Naseer , Vodafone and Egypt Telecom, the state-owned telecommunications company, into one entity. Initially, this company started operations under the name “Click”, then changed to “Vodafone Egypt”, after Vodafone acquired the local shareholders’ shares and became the largest shareholder, along with the Egyptian Telecommunications Company. The Egyptian government was hesitant in the beginning to open the market for a third operator but then took the decision to open the Egyptian market to competition from a new third mobile phone operator.

Over the years I developed very good relations with a large group of senior officials in Egypt through attending the League of Arab States meetings, the bilateral meetings between the UAE and Egypt and through Arabsat Board meetings. Most prominent among those was Dr Ahmed Nazif. My acquaintance of Dr Nazif dates back to the period when he was working for the Information and Decision Support Center which was affiliated to the Egyptian Cabinet. At that time, the center contemplated the idea of issuing Egyptian identity cards similar to the UAE identity card adopted later. Dr Nazif visited the UAE frequently, accompanied by Dr Tariq Kamil who later assumed the position of Minister of Telecommunications in Egypt. Later on, Ahmed Nazif was named Minister of Telecommunications and Tariq Kamil as his deputy. When Nazif was chosen to be Prime Minister, Tariq Kamil became Minister of Telecommunications. I also had connections

With Egyptian TRA President

With Previous Egyptian President

> "Egypt was a bright spot on the map of Etisalat's expansion abroad"

With Previous Egyptian Prime Minister

with Egyptian telecommunications and technology officials whom I met at international and regional conferences and exhibitions.

The bid for the third mobile network license was fiercely contested by various international companies from Italy, Kuwait, Qatar and others. Several rounds of offers were made. We kept re-bidding until the competition rested on two competing companies; **Etisalat** and Zain. In the end, we won the bid for just over $3 billion, with the solid undertaking to launch the network within just eight months. Then we embarked on implementation steps, including the required designs, the network and construction of buildings and towers, after obtaining the necessary permits and licenses.

It was a painstaking stage, requiring a lot of direct effort and actions from our staff, and indirect work through contracting specialized companies to implement some of these works. True to our reputation in meeting deadlines, **Etisalat** was able to complete all the requirements and to start operating the network within the specified period. With the expertise of UAE engineers and administrators and the finest cohort of young Egyptians, we were able to provide distinguished service in the Egyptian market. This superb performance on our part might also be partly attributed to the fact that Egypt has excellent capabilities and expertise.

The demand for **Etisalat** telecommunications services in Egypt was very high, with one million subscribers connected in less than one month. We embraced the brand name "**Etisalat** Misr" for our network services. This name was highly appreciated by the Egyptians because it combined the Arabic name of the country transliterated in Latin alphabet (Misr), and at the same time the name **Etisalat**, which is an Arabic name associated with

the quality services recognized worldwide. Though it was painstaking, the success was resounding. We, along with **Etisalat** Misr management led by an Emirati engineer Saleh Al Abdooli, hard-pressed our working teams to the maximum, in order to achieve the grand goals envisioned in the strategic action plan. With the support of the work team who lived up to the challenge, **Etisalat** Misr succeeded in making a real difference in the Egyptian market.

> With the expertise of UAE engineers and administrators and the finest cohort of young Egyptians, we were able to provide distinguished service in the Egyptian market

Standard Tariff in Egypt

The terms and conditions of the license we obtained in Egypt for operating the mobile phone network included a sub-license for an International Gateway, which means that as a service provider, we had the right to direct access with the outside world, without having to go through the state-owned Egypt Telecom. Accordingly, we immediately started to conclude agreements to obtain direct connectivity lines with foreign operators in several countries. The cost of international calls was high in Egypt at the time we started our operations, so we agreed to lower

international call charges, which meant lower international calls rates for subscribers. Now, with the concept of "Death of Distance", the differences between international and domestic calls have almost disappeared. These calls have come close to being free, or better still, already free through Voice Over IP (VOIP) technology.

After we launched "**Etisalat** Misr", the CEO of Saudi Arabia's Mobily approached me and put forward a brilliant idea, based on the fact that there were more than three million Egyptians residing and working in the Kingdom of Saudi Arabia. If we could arrange to offer a really low-cost tariff for calls between the two countries, the number of calls would soar to millions per day. I was impressed by the idea and instructed that we should negotiate terms between Mobily and **Etisalat** Misr under the supervision of **Etisalat** Headquarters. Work started on developing a different mechanism for calculating charges on these calls, whereby everyone who had a Mobily line and lived in Saudi Arabia could make local calls to another Mobily line in Egypt, at local call prices. There were some reservations about this idea, considering that it would negatively affect the profit shares generated from international calls. Various models for income and profit generation were studied. The findings of the study conducted by the team were quite convincing to those who had previously harbored some reservations and they agreed that the solution put forward was viable enough to be put to the test for at least a limited period. We applied the new mechanism and were surprised that the number of daily calls exceeded 30 million minutes, and if we charged only 10 Fils per minute, we would ultimately end up with massive revenues.

This innovative idea proved to be a milestone in the company's history. Every Egyptian citizen working in Saudi Arabia bought a Mobily line for his family members and relatives back in Egypt. In this way, he could

call and talk to them whenever he wanted, at local call cost. **Etisalat** Misr also benefited from millions of calls which generated additional revenue to the company. That was the ultimate goal for entering into partnerships: employing synergies to come up with genuine solutions to facilitate communication between customers and create value.

Our experience in the Egyptian market was distinctive on more than one leve

Our experience in the Egyptian market was distinctive on more than one level. For example, before the start of the work, we conducted a field survey to discover which trade name the customers preferred. We were surprised that a large percentage of the Egyptian population knew the name of **Etisalat** better than the names of other telecom companies providing services in the Egyptian market. We noticed the extent of the Egyptians' affection towards the UAE and their love for the UAE, which I believe is equally shared by Emirati people. Sheikh Zayed, may God have mercy on him, made many benevolent gestures that had tremendous impact in the lives of Egyptians, especially in the construction of irrigation water canals from the river Nile to expand the agricultural land, and building housing units in areas that were in dire need. Egyptians are grateful people who openly express their love for the UAE and the Emirati people.

With regard to business, Egypt witnessed fierce competition between the three telecom companies to provide the best quality services at the lowest possible cost. **Etisalat** Misr succeeded to rank second in

terms of income and number of registered subscribers, which was an unprecedented achievement within such a short period of time.

Sudan

Sudan issued a license to establish a wireless fixed line network and we concluded an agreement with Sudanese shareholders to bid for that license. Hence, Kanar Telecom was eventually established, with **Etisalat** acquiring the majority of shares in the new company. We were entrusted with the management and **Etisalat** commenced building a fiber optics network in Khartoum, linked to several regions in Sudan and started to provide services. The new company expanded at a reasonable rate, but the owners elected to sell it to another party.

In conclusion to this chapter, it is important to note that growth, development and change are natural features for of both individuals and businesses. Working methods change and evolve from time to time, based on many internal and external factors. The telecommunications sector is dynamic by nature and has a great impact on the economic and social sectors. This is what I was living with throughout the period of working for **Etisalat**, as it was natural at that time to embrace a policy of expansion into new markets.

This expansion has had both positive and negative consequences. However, I believe the positive results exceeded the negative ones and

reinforced the trade name and image of **Etisalat** as a leading global telecommunications company and in the countries where we sought investment. This is particularly true, considering that the name of the UAE has always been associated with the late Sheikh Zayed, mercy be upon his soul, who was an icon of undiscriminating love for people and for his pursuit of good and goodness, true to his nickname Zayed al-Khair; which literally translates to 'the one who strives to increase goodness'. I can also affirm that the affection, love and appreciation we were met with from the officials and people we came across throughout the world, could only be attributable to the good reputation of the UAE and the genuine appreciation to its leaders, who turned the desert into a model of growth and prosperity.

> **Working methods change and evolve from time to time, based on many internal and external factors. The telecommunications sector is dynamic by nature and has a great impact on the economic and social sectors**

Chapter Eleven

Distinguished People I Have Worked with

Throughout the long years of my professional career in the field of telecommunications, I was fortunate enough to meet and relate to outstanding and exceptional persons, from whom I have learned a lot in realms of management, leadership and human relations. It may not be possible to mention all of them here; however, I will focus on personalities who have left a distinct mark on me through their vision, courage, determination and dedication to the UAE and **Etisalat**.

H.E. Mohamed Saeed Al Mulla

HE Mohamed Saeed Almulla

> His directives and opinions were the final word in cases of difference of opinions during meetings' deliberations, or when we sought advice on major work issues

When I first joined **Etisalat**, HE Mohammed Saeed Al-Mulla was the incumbent Minister of

Telecommunication and the Chairman of **Emirtel**/**Etisalat** Board of Directors, a position he retained until 1998, when he retired and was replaced by HE Ahmed Humaid Al Tayer. I didn't have a lot of contact with Mr. Al Mulla as was the case with Mr. Ali Al-Owais, but I did meet him on a monthly basis during the regular **Etisalat** meetings or whenever he visited the Company for other reasons. His directives and opinions were the final word in cases of difference of opinions during meetings' deliberations, or when we sought advice on major work issues.

HE Mohammed Saeed Al Mulla is a trustworthy person who has earned the confidence of the UAE sheikhs and rulers, as well as the confidence of all those who worked with him, for his unblemished integrity, uncontested sincere love for the UAE and his relentless strive to see his country ranking top, independent and self-sufficient. He has an insightful vision, and all that he envisaged has turned into reality, opening the doors for the success and welfare for **Etisalat** and Emirati people.

He is a well-established businessman; one of the leading Dubai traders and a self-taught person. He did not attend university, yet his innate intelligence, coupled with practical life lessons and the experience he earned from these hard-won lessons, qualified him to achieve what many people could not. He deservedly won the unwavering trust of Sheikh Zayed, Sheikh Rashid bin Saeed and all the rulers of the other emirates. He has played an instrumental role in the discussions of the Council of Ministers for the welfare and interests of the UAE and its people.
H.E. Al Mulla was the instigator of the idea of the Emiratization of **Emirtel**. He once told me that, having noticed that foreign telecom companies were focused on amassing revenues, paying little attention to the development and expansion of telecommunications services, he approached the late

Sheikh Rashid bin Said Al Maktoum, Vice President, Prime Minister and Ruler of Dubai at the time, with a daring idea. Why, he asked Sheikh Rashid, shouldn't we buy all the shares of foreign companies and offer them for sale to Emiratis and accordingly assume direct management of the company?

A man who would not put up with failure, Sheikh Rashid wondered if the Emiratis were ready for that colossal task. Al-Mulla put his hand to his chest and said confidently: I guarantee you success and I am ready! Sheikh Rashid decided to put his entire trust in Al-Mulla and the first Emirati telecommunications company **Emirtel** was conceived, there and then! It was delivered later and went on to become one of the most leading international companies in its field, and undisputedly one of the largest companies in the region.

> "He was known for openly expressing his impartial opinions freely and uninhibited by any considerations other than personal integrity"

> "We, in Etisalat, always had absolute trust in his opinions"

The work environment in which I spent most of my professional career allowed me to get acquainted with HE Al Mulla through the Board meetings and the monthly visits he made to our office, where he met with the General Manager Mr. Ali Al Owais. As one of the senior officers, I had to be involved, along with other senior staff, in such regular tours of the Minister. He was known for openly expressing his impartial opinions freely and uninhibited by any considerations other than personal integrity. His opinions on disputable and heatedly debated issues, such as when discussing

equipment, devices, acquisition, were the final words. He put forward his opinion straightforwardly and without having second thoughts triggered by ulterior considerations or calculations. This was also known about his personality in his dealings with the sheikhs. They never got upset by his frankness because they were quite sure of his transparency, patriotism and loyalty to the UAE.

We, in **Etisalat**, always had absolute trust in his opinions, and knew only too well how insightful, visionary and futuristic he was. Some of the most significant and unforgettable events was his position with regard to the establishment of the **Etisalat** College and the project of the E-Marine submarine cable ships. I was involved in the implementation of both projects. On one occasion, during his meeting with Mr. Ali al-Owais, he asked me about progress in the construction of the **Etisalat** College building, which was his own idea in the first place. I told him frankly that the estimated costs were extremely high due to the top-quality design and specifications sought, and I suggested that we should consider reduction of costs by making certain changes in specifications. He sternly responded: "We must do the best, even if it is the most expensive, because universities are built for the future, for decades to come, even for centuries and not for a short period".

He was also behind the idea of the e-marine cable ships, though I was not very enthusiastic about it at first, as the whole issue was very complex and intricate, and it fell outside the area of our investment and expertise. His argument was that we needed new investments and we should establish our own specialized cable ships as a type of insurance for our main area of business. Any failure in the networks or system would incur heavy losses which might occur due to delays on the part of the submarine

cables repair ships. The quality of our services would be compromised, and the losses would be doubled by the day. Indeed, he was absolutely right. As a result, we were established as pioneers in this field. We reaped tremendous benefits from the establishment of our own e-marine cable ships company, in terms of enhanced trustworthiness and reliability, as well as gaining huge revenues and establishing our name as pioneers in this field. I learned from him how to take bold decisions once I was convinced of the appropriateness and viability of a novel idea, and after doing thorough scrutiny and necessary consultations.

One of the most appealing personal traits of HE Al Mulla was his simple humility, which I have succinctly intuited through working in **Etisalat** for a long period and accompanying him to a number of international telecommunications and Arabsat conferences. I was amazed by his simplicity, his refrain from pretentiousness or showing off, even though he was a prominent businessman who owned many successful companies and ventures. HE Mohammed Saeed Al Mulla was loved by all who came to know him. He retired from **Etisalat** in 1998. I pray to Allah to grant him happiness and longevity.

Mr. Ali Al Owais:

General Manager of **Etisalat**

HE Ali bin Salim Alowais

I knew Mr. Ali Al Owais long before I first applied for a job with **Etisalat**, as we were distant relatives. In the early days of my professional career, I first met him in his office at the Ministry of Communications in Abu Dhabi, where he worked as General Manager of the Telecommunication Sector within the Ministry. **Emirtel** was seeking to hire fresh Emirati engineers and it so happened that I was among the very first Emirati young graduates with a degree in telecommunications engineering. He welcomed me and directed me to see Mr. Jeff Downer, **Emirtel** General Manager at that time, for a formal employment interview. I was in constant contact with him during my first years of work with **Emirtel** and he became my direct boss when he was appointed General Manager of the corporation in 1982. This closeness grew even stronger when I was promoted to the position of Deputy General Manager of the corporation.

Ali Al Owais was very precise in his work, which involved vital issues of crucial significance in the field of telecommunications. I had to meet with him almost on a daily basis, as part of my professional obligations. Though we were on the same wavelength most of the time, we still disagreed in many aspects, for the interest of work. We shared the common goal of turning **Etisalat** into one of the most successful telecommunications companies on both regional and international levels, which would contribute to consolidating the image of our country. I firmly believe that quality, professionalism, hardworking and attention to detail were his axioms in performing every task and every action with which he was entrusted. Perhaps this is the main reason behind the resounding success and rapid growth of **Etisalat** during his 22 year tenure.

Mr. Al Owais was fully and wholeheartedly devoted to **Etisalat**. He gave all his time and effort to the company, working single-mindedly, around the clock, in his quest for the ultimate development of **Etisalat**. He was the first to arrive at work and the last to depart. He was never lenient with regard to punctuality, demanding from each of his subordinates to respect the working hours, from 7 am to 3 pm, and whoever arrived at work ten minutes after seven would be in real trouble. However, those who strived to perform their duties with diligence were fully appreciated and generously rewarded.

"Mr. Al Owais was fully and wholeheartedly devoted to Etisalat. He gave all his time and effort to the company, working single-mindedly, around the clock, in his quest for the ultimate development of Etisalat"

He was a very strong and firm person and his self-respect and reputation were evident wherever he went and in whatever he did. He was vigilant and keen and did not accept negligence or failure whatsoever. I remember during one of his inspection visits, he detected a small amount of dust between two adjacent racks of equipment. He was utterly furious. Despite his relentless firmness, he was loved and greatly admired by his subordinates, because of his flawless fairness. He believed that hardworking people deserved reward and appreciation. Mr. Ali Al Owais was a very frank and courageous man, who expressed his opinions with transparency and honesty, irrespective of the sometimes-unwelcome response of his listeners.

He was not diplomatic, very much unlike me. Due to our long and close work relation, we often disagreed but with complete respect, affection and appreciation, which has lasted until today.

I have learned so many things from his unique personality through our continued relation and working together. I have learned that as a manager you have to be bold and insightful and work hard to develop insightful opinions on major issues at stake. I have known lots of people who fail to bear responsibility for their own erroneous administrative decisions through evasive tactics. Generally speaking, the main lesson I learned from him is that success in management depends entirely on boldness in making decisions and bearing the consequences.

Sharp-edged insightfulness was the most striking personal trait of Ali al-Owais, which is consolidated by being extremely knowledgeable and capable of intuitively getting an unmistakable understanding of people with whom he mixed. His judgmental opinions on people turned out to be absolutely correct. I used to disagree with him, but his judgments always proved to be true.

There were certain issues which Ali Al Owais had considered of prime importance and spared no effort whatsoever to accomplish; namely Emiratization and all issues relating to the question of patriotism, and empowerment of the Emirati workforce. Those efforts were undoubtedly instrumental in transforming **Etisalat** into one of the leading business organizations in the UAE.

Ali Al Owais studied engineering and radio technology and was able to absorb the most complicated technical matters. He liked electronics and broadcasting devices to the extent that, when he was still a young teenager in the early 60s in Sharjah, he created his own radio broadcasting station, which broadcast music and songs. I remember accompanying him, with other foreign visitors, on a visit to His Highness Sheikh Khalifa, who was then the Crown Prince of Abu Dhabi. He welcomed us and addressed Al Owais by saying that he used to listen to his radio broadcasting in Al-Ain and he still remembered the songs which were then broadcast.

It is almost impossible to give a comprehensive description of an extraordinary character like Ali Al Owais in a few lines or pages, but one can say that he is certainly an exceptional personality. Perhaps, one of his most remarkable qualities is that he does not embrace a one-man-show attitude. He did not allow any of his subordinates to transcend his or her

> He was vigilant and keen and did not accept negligence or failure whatsoever

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prescribed authorities and obligations or engage in intimidating colleagues or subordinates. We used to subject any issue to thorough discussion and scrutiny together, which involved debates and heated arguments without losing sight of achieving the best for **Etisalat** and the country at large. Though we embraced different points of view, we would finally agree on the course of action to be followed and strictly adhere to what we had agreed upon.

Al Owais played a very important role in the introduction of mobile phone service into UAE through his insightful visionary thought, as proved viable and truthful by the passage of time. He related to others boldly and fairly and worked silently, shying away from the limelight and pompousness. When he felt overworked and needed to stay away from work for a while, he preferred to take a brief sojourn in his private farm in Al Dhaid or the East Coast.

Before concluding this part on Al Owais and his significant role in the advancement of **Etisalat** and the telecom sector in the country, it is pertinent to mention that we the Emiratis feel quite grateful to him for insisting on choosing names derived from Emirati heritage for **Etisalat** products. For example, before we got to the stage of "GSM" we used Arabic names for our products and services, such as Tawash, Tannaf or Qannas, up to the Pager devices. Most of these names were drawn from and inspired by the local environment.

I had a passion for allocating telephone numbers and the mathematical and computation processes involved. He liked to assign names to our products and services. He did not believe in sophisticated marketing methods and always insisted that a good product promoted itself.

In 2004, with the opening of the market to competition, he felt it was time to leave, as he had been contemplating retirement for some time. Thus,

he left **Etisalat** ending an eventful period during which the company made tremendous achievements, which contributed to the growth of the whole country. He left behind a legacy full of respect, appreciation and affection in the hearts of all who worked with him and knew him closely.

H.E. Ahmed Bin Humaid Al Tayer

HE Ahmed Altayer

After the departure of H.E. Mohammed Saeed Al Mulla, Minister of Telecommunications in 1998, he was replaced by H.E. Ahmed bin Humaid Al Tayer who consequently became **Etisalat**'s Chairman. Ahmed Al Tayer had held many ministerial positions before that, including the Minister of Education, the

> "Ahmed Al Tayer laid particular emphasis on training, qualifying and empowering UAE nationals who worked for Etisalat"

State Minister for Finance and acting minister in many others. Continuing the efforts of his predecessor, Ahmed Al Tayer laid particular emphasis on training, qualifying and empowering UAE nationals who worked for **Etisalat**. He decided to retire and leave the Ministry in 2004.

I had the opportunity to work with many prominent people as colleagues in **Etisalat**. Some of those colleagues worked for **Emirtel** or the telecommunications companies which were providing services before **Emirtel**. Of those, I remember the late Mohammed Rafi Al Mulla, who later became the manager of **Etisalat**'s Dubai branch; Mr. Ibrahim Askar, who became the manager of the West Coast branch in Sharjah when I first joined **Emirtel**, and Yousef Amiri, who took over as the Commercial Director of the Abu Dhabi branch, and many others.

Together with my colleagues who had joined **Emirtel** before it was renamed **Etisalat**, we learned a lot from the pioneers who preceded us in working in this sector. They were people with long experience in dealing with people, solving problems, and expert in handling governmental procedures. Although our academic training had endowed us with a huge body of technical and technological knowledge that surpassed their technical training, we still desperately needed their expertise in many areas, which was generously made at our disposal whenever we asked for guidance and advice. We all worked as one team for one goal and never lost sight of that common goal.

The fact is that **Etisalat** succeeded in bringing together one of the best teams. I still cherish all the beautiful memories and eventful situations with all of my colleagues, but that falls beyond the boundaries of this book. In addition, our work abroad, in several countries, increased the number

of distinguished and prominent people, from different nationalities, I was lucky to befriend. Thank Allah that we have all succeeded to perform our duty diligently and achieve resounding success for the company and serve our country and its people, in the best ways and to the fullest of what we could muster.

> **I still cherish all the beautiful memories and eventful situations with all of my colleagues, but that falls beyond the boundaries of this book. In addition, our work abroad, in several countries**

Chapter Twelve

From **Etisalat** into the World of Academia

The 29th of February 2012 was my last day in **Etisalat**; which I had joined thirty-five years earlier, as a graduate engineering trainee, and left as CEO and Chairman of the globally recognized company. My trajectory with the company had come to an end but my journey in the service of my country did not halt here.

In April 2013, I received a phone call from the State Minister for Cabinet Affairs, HE Mohammad Al Girgawi, informing me that I was nominated for the position of the Chancellor of the Higher Colleges of Technology (HCT) and that a decree to this effect would be issued on the following day. HCT is a (polytechnic) university providing tertiary education for Emirati students, with 17 campuses in all seven emirates of the UAE. The Most striking feature of this institute of higher education is the fact that it emanated from a totally different perspective.

"The foresight of His Excellency Sheikh Nahyan bin Mubarak Al Nahyan, who was the maestro of higher education in the UAE and the Minister of Higher Education for many years, had a major impact on the development of higher education in the UAE"

The foresight of His Excellency Sheikh Nahyan bin Mubarak Al Nahyan, who was the maestro of higher education in the UAE and the Minister of Higher Education for many years, had a major impact on the development of higher education in the UAE through the introduction of best-in-class educational methods and curricula and state-of-the-art professional and academic training, to qualify UAE nationals and enable them to serve their

country.

When started, HCT welcomed young Emirati students after successfully finishing their secondary education to enroll in three-year academic programs leading to a higher diploma. Later on, the curricula and plans were developed and upgraded to offer bachelor programs, in addition to the higher diploma. I lived through the various stages of the establishment of these colleges, by virtue of my membership in the Board of Trustees, before becoming HCT chancellor. I have had a very rich and illuminating experience working for this institute of learning, which lasted for five years, up to April 2018.

Before assuming my post with HCT, I had some previous engagements with the world of academia. I was a member of the Abu Dhabi University Board of Trustees and was partially responsible for supervising the academic and administrative issues of the College of Engineering at **Etisalat**. By the time the College of **Etisalat** was finally incorporated into the Khalifa University, I was chosen to serve as a member of the Board of Trustees at Khalifa University.

Putting my experience with the world of academia aside, I think I am in a position to say that working in academia is quite different from engaging in government or private sectors. Academics have their own world, their own approaches to various issues and questions, and it is not easy to blend with them after long years of working in a semi-private sector.

As part of my engagement in activities related to community service, I had a very interesting experience with the Emirates Foundation for Youth Development which sponsors the youth and carries out cultural activities. This body was founded upon the initiative of His Highness Sheikh Mohammed bin Zayed Al Nahyan to encourage the private sector's

participation in community services. Several bodies participated in supporting the Foundation, including **Etisalat** during my term as CEO. Sheikh Mohammed directed that the contribution of government entities to the Foundation should be equal to that of the private sector. His Highness, as a role model, decided to become the Chairman of the Board of Trustees

> **Academics have their own world, their own approaches to various issues and questions, and it is not easy to blend with them after long years of working in a semi-private sector**

At meeting with leadership and student of Khalifah University

with Higher Colleges of Technology Board members

during its first term and I was a member of the board, together with other prominent Emirati figures.

I was actively engaged in the activities of the Foundation for several years. I was delighted to see that it is genuinely concerned with everything related to guiding Emeriti Youth towards greater success, on both personal and national levels.

In this book, I have tried to highlight significant milestones in my professional and private life journey, with the hope of providing the readers with glimpses from my career and life experiences. I believe that human experiences are unrepeatable, just as the drop of water that reaches the sea will never reverse course. I hope I have spared my reader going through the experience of tasting its salinity and the giddiness of boredom.
Bye for now, until we meet in another publication.

Farewell: Closing Remarks

I am indebted to the experience of writing this book because it brought back to the fore some faces, events, and details that had long been buried in my memory. The fact that they are still there demonstrate that genuine contributions will last forever, that success is the outcome of hard work, and that patriotism is the noblest love.

In the foregoing pages I shared with the reader some events and developments, which I related in all honesty and transparency, leaving out any details that I deemed personally sensitive and would not add substantive value.

The purpose behind writing this book is to give my honest personal account of a professional journey that endowed me with success and pleasure, and that I lived wholeheartedly, sparing no energy or time in this endeavor.
I am thankful to Allah for His bountiful blessings during what was a lively professional trajectory, and for the opportunity to live and witness important moments, take decisions, and shoulder responsibilities that only a few would avail.

My purpose behind putting those milestones in career and life within the

folds of a book is to share with the reader some professional and life experiences. I know that personal experiences cannot be exact copies of each other because change is a fact of life. However, they do contain the outcome of a life experience that can be applied in all times and places. This is because humans share the same passion for the better. Of course every person has his own imprint and personal addition. A water drop will no longer be the same one once it falls onto a sea. It will be born into a new life cycle and each time it will irrigate a new land.

I hope the reader would found this book a pleasant read.

See you in a new release!

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